

DIPTERA OF AUSTRALIA.

BY FREDERICK A. A. SKUSE.

PART VIII.—THE TIPULIDÆ LONGIPALPI.

(Plates IV-VI.)

The TIPULIDÆ LONGIPALPI are distinguished from the BREVI-PALPI by several more or less prevailing characters. The insects themselves are usually large, and commonly keep the wings divaricate in repose. The terminal joint of the palpi is as a rule long and flagelliform. The antennæ are normally 13-jointed. The rostrum is generally prolonged and usually provided with a more or less distinct pointed nasus at the upper extremity. The ♂ genital organs are often very complicated. The wings are usually traversed by a distinct fold transversely across the apical portion; the venation, which is not subject to very much variation, is characterized by the auxiliary vein terminating in the first longitudinal vein; the absence of the sub-costal cross-vein; the first longitudinal vein ending in the second longitudinal, and connected, near its tip, to the costa by a cross-vein: this cross-vein together with the anterior branch of the second longitudinal form a small rhomboid cell (which seems characteristic of all the genera except some included in DOLICHOPEZINA); and lastly, the posterior intercalary vein originates so far back as to usually bring the discal cell in not more than punctiform contact with the fifth posterior cell.

About fifty species belonging to this division of the Tipulidæ are herein described, nearly two-thirds of the number being now characterized for the first time. The following is the summary and arrangement of the genera and species:—DOLICHOPEZINA,

genus *Dolichopeza*, Curtis (syn. *Apeilesis*, Macq.), 8, and *Tany-premna*, O.-Sack., 1; CTENOPHORINA, *Ctenogyna*, Macq., 1, and *Clytocosmus*, gen.nov., 1; TIPULINA, Sect. I. No nasus to rostrum,—*Ptilogyna*, Westw., 1; *Platyphasia*, gen.nov., 1; *Plusiomyia*, gen.nov., 5; *Habromastix*, gen.nov., 3; and *Phymatopsis*, gen.nov., 1: Sect. II. Nasus to rostrum,—*Semnotes*, Westw., 2; *Leptotarsus*, Guérin, 5; *Acracantha*, gen.nov., 3; *Ischnotoma*, gen.nov., 3; *Holorusia*, Loew, 2; (?) *Tipula*, Linn., 3; *Pachyrrhina*, Macq., 1; and *Macromastix*, O.-Sack., 6.

Apeilesis is considered identical with *Dolichopeza*, the difference to be found in the male holding-forceps not being regarded as of sufficient importance to split up the species into two genera, but possibly of some subordinate value. *Ctenogyna* has manifestly no relationship to *Ptilogyna*, inasmuch as it possesses a nasus and the general characteristics of the CTENOPHORINA. *Clytocosmus* (g.n.), also referred to this section, is a very striking form, apparently intermediate between the the CTENOPHORINA and TIPULINA. Among those genera provisionally included in TIPULINA, several interesting forms are described. *Ptilogyna ramicornis*, Walk., has been characterized under five different specific names by former authors. *Plusiomyia* (g.n.), is suggested for the reception of Walker's *Pedicia gracilis*, afterwards described by Westwood as *Ozodicera longipedalis*: and four new species are added, two doubtfully, for they exhibit certain peculiarities not quite in accordance with this genus. *Platyphasia* (g.n.) seems to be intermediate between *Ptilogyna* and *Plusiomyia*. The fresh genera *Habromastix* and *Phymatopsis* contain species which certainly seem related to those embraced in the three preceding, by the simple structure of the male genital organs, and in wanting a nasus to the rostrum, but exhibit some inconformities; the antennæ, which are very long in *Habromastix*, are in no case pectinate or even serrate. Among the species having a distinct nasus to the rostrum, none have been found to conform to the genus *Tipula* (*sensu stricto*); however, three old-described species are provisionally set down under that title until more complete information about them is forthcoming. Three species with serrate or sub-serrate antennæ

(including the insect described originally by Walker as *Ptilogyna par*) are included in *Ischnotoma* (g.n.). The examination of a very large number of specimens from all parts of Australia strongly convinces the author that only a single species of *Macromastix* has been hitherto recorded from this country; the original species, *M. costalis*, Swed., having been described under no less than six different names. Descriptions of five new species are now added; in one of these, the male possesses not nearly such long antennæ as *M. costalis*; the remaining four, while displaying all the leading characters of the genus, possess equally short antennæ in both sexes.

It will be noticed that the genera have been classified under the three sections suggested by Baron Osten-Sacken (Studies on Tipulidæ, I.), but this has been done in a most unsatisfactory manner, seeing that it is at present difficult to define the limits of any of them. Indeed in order to possibly discover well-defined sections among these insects, the student must first accumulate a mass of material from all parts of the world, and have access to the types of the previously described genera. It does not appear that we are justified in separating *Dolichopeza* and its relatives from the genera provisionally classified under TIPULINA, for the reason that it is uncertain whether forms like *Habromastix* and *Phymatopsis* are not exactly intermediate, and do not baffle all attempts to draw the line between the two. If we place them in a third group of DOLICHOPEZINA, the extent of that section will be so amplified that there appears no reason why other genera with simple genital organs in the ♂, abnormal antennæ, and with or without nasus to rostrum, should be excluded; and eventually we might find ourselves placing *Ptilogyna* and its allies in the same section. An exhaustive examination of the genital organs in *Ctenophora* and its relatives may discover characters which are distinctive; but *Clytocosmus*, which exhibits the general features of *Ctenophora*, is provided with a long glabrous rostrum, no nasus, and agrees with certain TIPULINA in the venation of the wings.

But though I cannot see how this suggested distribution into sections can stand, I am scarcely qualified to suggest a better division. There undoubtedly remain many interesting forms yet to be brought to light, which may materially alter our views.

It would be an unpardonable oversight if I did not here thankfully acknowledge the immense assistance gained from Baron Osten-Sacken's "Studies on Tipulidæ," also his kindness in sending me a copy of Westhoff's splendid paper "Ueber den Bau des Hypopygiums der Gattung *Tipula*," and several others of his own publication, otherwise not obtainable in the colonies; also Dr. Bergroth has rendered me considerable assistance by sending me copies of his valuable writings on Tipulidæ.

Section I. DOLICHOPEZINA.

This section, if it will eventually be admitted as such, at present may be said to include five described genera. They are, in the words of Osten-Sacken, "distinguished by the extreme length and slenderness of their legs (especially of the tarsi), and the light and delicate structure of their bodies: characters which, in the European *D. sylvicola*,* are connected with the habit of flying in zig-zag, *Ephemera*-like, in shady localities. . . . The antennæ of the male in this group are often much longer than those of the female; sometimes of extraordinary length. But that this character is, generically, an unimportant one, is proved by the genus *Megistocera*, where exceedingly long antennæ will occur in some species, and exceedingly short ones in others, without any noteworthy difference in the rest of the organisation." The author then goes on to say that he is unable to characterize this section as a whole; but "besides the great length and slenderness of the legs, the anterior branch of the second vein may be used for that purpose: it is either altogether absent (*Dolichozeza*) or obsolete, or else perpendicular, and not as usual oblique, thus rendering the rhomboid cell near the stigma more or less square."

* And apparently in all the other species; at any rate it applies to the Australian ones.

SYNOPSIS OF GENERA.*

I. Antennæ 13-jointed; male forceps of a complex structure. No nasus to rostrum. No discal cell. Anterior branch of second longitudinal vein obsolete.

Præfurca very short; great cross-vein before the proximal end of fourth posterior cell *Dolichopeza*, Curtis.

Præfurca wanting; great cross-vein beyond the proximal end of fourth posterior cell..... .. *Scamboneura*, O.-Sack.

II. Antennæ less than 13-jointed; male forceps small, of simple structure. Distinct nasus to rostrum. Discal cell present. Anterior branch of second longitudinal vein present.

a. Wings crystalline; fifth posterior cell not in contact with the discal cell..... .. *Megistocera*, Wied.

b. Wings not crystalline; fifth posterior cell in contact with the discal cell

Head on a neck-like prolongation of the thorax; seventh longitudinal vein short, running into the anal angle..... .. *Brachypremna*, O.-Sack.

Head more closely applied to the thorax; seventh longitudinal vein reaching the posterior border some distance from the anal angle..... .. *Tanypremna*, O.-Sack.

Genus 1. DOLICHOPEZA, Curtis.

Dolichopeza, Curtis, Brit. Entom. II. p. 62, 1825; Meigen, Syst. Besch. VI. p. 283, pl. 65, figs. 10-11, 1830; Macquart,

* Based on that by Baron Osten-Sacken (Studies I. p. 156, 1886).

S.àB. Dipt. I. p. 115, 1834 ; Zetterstedt, F. Lap. 1840 ; *Apeilesis*, Macq., Dipt. Exot. suppl. I. p. 8, 1846 ; *Dolichopeza*, Walker, Ins. Brit. III. p. 315, 1856 ; O.-Sacken, Studies, I. p. 157, 1886 ; Bergroth, Wien. Ent. Zeit. VIII. p. 114, 1889.

Anterior branch of second longitudinal vein *entirely wanting*, consequently there is no rhomboid cell. Präfurca extremely short, often almost vertical. Discal cell *wanting*, the great cross-vein situated a considerable distance *before* the base of the fourth posterior cell. Antennæ 13-jointed. Genitalia of ♂ somewhat incrassate, sometimes with long digitiform appendages.

Rostrum short, without a nasus ; the latter replaced by a tuft of hair. Front moderately broad ; eyes nearly round. Second and third joints of palpi each longer than the first ; fourth long, flagelliform. Antennæ 13-jointed, usually longer in ♂ than in ♀ ; first joint of scapus tolerably long, obconical ; second small, cyathiform ; flagellar joints cylindrical, gradually decreasing in length, more or less beset with stiff hairs ; terminal joints very small. Collare somewhat prolonged. Thorax convex, elongate-ovate ; transverse suture distinct ; scutellum small ; metanotum convex. Abdomen long, narrow, cylindrical ; ♂ genital organs (Pl. VI., figs. 24, 25) somewhat incrassate, provided with long or short digitiform appendages ; the lamella terminalis supera bidentate (with a deep emargination between) at the middle ; ♀ ovipositor with rather short valves, the upper ones like the blade of a knife (spiniform viewed from above) for about (or less than) the apical half. Legs very long and slender ; tibiæ with very minute spurs, more distinctly visible on the hind pair ; tarsi very slender, the metatarsal joint longer than the tibiæ.

The venation of the wings is not subject to much variation but is in some respects peculiar. The auxiliary vein ends just before the inner end of the stigma. The first longitudinal vein is incurved into the second before the middle of its length. The præfurca is remarkably short, usually scarcely longer than the small cross-vein ; and the anterior branch of the second longitudinal vein is entirely wanting. Second posterior cell usually short, with a long petiole, but in *D.*

longifurca (similarly to the European *D. sylvicola*, Curtis, and the Algerian *D. fuscipes*, Berg.) it is long. The discal cell wanting, being opened posteriorly (into the fourth posterior cell), consequently the anterior branch of the fourth longitudinal vein appears as twice branched. The great cross-vein is situated much before its usual place, sometimes its length distant before the inner end of the fourth posterior cell (corresponding to the inner end of discal cell in most other genera). The anal angle is not very prominent in any of the species, but in some it is so reduced that the seventh longitudinal vein runs very close to the margin. The stigma, which is always distinct, is of a more or less oblong shape, and fills up the space between the costa and second longitudinal vein from opposite origin of præfurca to tip of first longitudinal; at each end of the stigma a more or less distinct white spot or light reflection seems always present.

I quite agree with Bergroth (Wien. Ent. Zeit. VIII. 1889, p. 114), that *Apeilesis* cannot be maintained as a genus distinct from *Dolichozeza*. The only difference pointed out by Osten-Sacken is the length of the digitiform appendages which are very conspicuous in *D. cinerea*, Macq., and some other species, while they appear to be very inconspicuous in the hitherto known examples of *Dolichozeza*; but I do not consider this character of more than sub-generic importance, even if it is that: at any rate it does not appear to be supported by any other peculiarities.

Only about half a dozen species of *Dolichozeza* appear to have been yet described; two or three from Europe (V. z.-b. G. Wien, XIX. pl. iv. 1869, figs. of wings by Mik), one from Algeria, another from Madagascar, and one from N. America. Eight are now characterized from Australia, seven of which are new. Doubtless numerous other species will be readily discovered.

All the following described species are found in damp shady situations. They may be at once recognized by their peculiar dancing flight; and on account of their extremely delicate and slender structure are extremely difficult to see when flying.

Table for determining the species.

I. Genitalia of ♂ with short inconspicuous digitiform appendages: sub-gen. *Dolichopeza*.

Anal angle of wing only very slightly projecting, consequently the seventh longitudinal vein close to the margin.

1. Genua, tips of all the tibiæ, and last four tarsal joints with tip of metatarsus, white *annulipes*, sp.n.
2. Genua, and last four tarsal joints with tip of metatarsus, white.
 - * Pleuræ obliquely banded with brown..... *niveitarsis*, sp.n.
 - ** Pleuræ obliquely banded with white..... *monticola*, sp.n.

II. Genitalia of ♂ with long digitiform appendages: sub-gen. *Apeilesis*.

- a. Digitiform appendages smooth *planidigitalis*, sp.n.
- b. Digitiform appendages toothed on the inner side.
 1. Legs unicolorate.
 - † Second posterior cell short.
 - * Digitiform appendages bidentate at the middle *cinerea*, Macq.
 - ** Digitiform appendages with a tooth at the middle and another near the tip..... *brevifurca*, sp.n.
 - †† Second posterior cell very long..... *longifurca*, sp.n.
 2. Legs with the genua, tip of hind tarsi, and last four tarsal joints with tip of metatarsus, white *varipes*, sp.n.

I. ♂ *genitalia with short inconspicuous digitiform appendages.*

386. DOLICHOPEZA ANNULIPES, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·070 inch | ... | 1·77 millimètres. |
| Expansé of wings..... | 0·350 × 0·080 | ... | 8·88 × 2·02 |
| Size of body..... | 0·290 × 0·030 | ... | 7·35 × 0·76 |
| ♀.—Length of antennæ..... | 0·070 inch | ... | 1·77 millimètres. |
| Expansé of wings..... | 0·350 × 0·080 | ... | 8·88 × 2·02 |
| Size of body..... | 0·320 × 0·030 | ... | 8·12 × 0·76 |

Head, rostrum, and basal joints of palpi and antennæ pale yellow; occiput, suctorial labella, flagellar joints, and last joints of palpi brown; antennæ short, of equal length in both sexes; flagellar joints with two or three long stiff hairs near the base. Thorax brown, opaque, with a broad pale yellow stripe extending from the humeri, across the pleuræ, to base of hind coxæ; a small more or less distinct, V-shaped, yellow marking immediately below transverse suture; metanotum sometimes with a very distinct pale median line when viewed at a certain obliquity. Halteres with a dark brown club and yellowish-brown stem. Abdomen brown, the segments more or less distinctly banded with yellow across the middle, in the ♀ sometimes very indistinctly; genitalia ochreous-brown. Legs dark brown, ochreous towards base of femora, with yellow coxæ; genua, a broad ring at tip of tibiæ, tip of metatarsus and last four joints of tarsi entirely white. Wings anteriorly, and most of the veins, slightly clouded with pale brown; a distinct hyaline spot at each end of the stigma; stigma and veins brown, very distinct; anal angle of wing only a little projecting, consequently the seventh longitudinal vein close to the margin; great cross-vein rather more than half its length distant from inner end of fourth posterior cell.

Hab.—Lawson, Blue Mountains (Masters); Middle Harbour and Neutral Bay, near Sydney (Froggatt and Skuse). September to April. Eight specimens for comparison.

387. DOLICHOPEZA NIVEITARSIS, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·125 inch | ... | 3·16 millimètres |
| Expand of wings..... | 0·330 × 0·080 | ... | 8·38 × 2·02 |
| Size of body.... . | 0·260 × 0·030 | ... | 6·62 × 0·76 |
| ♀.—Length of antennæ..... | 0·075 inch | ... | 1·89 millimètres. |
| Expand of wings..... | 0·350 × 0·080 | ... | 8·88 × 2·02 |
| Size of body..... | 0·310 × 0·030 | ... | 7·87 × 0·76 |

Head, rostrum and basal joints of antennæ yellow or brownish-ochreous; occiput, flagellar joints, suctorial labella and palpi brown; ♂ antennæ considerably longer than those of ♀, the flagellar joints in both sexes beset with short stiff hairs. Thorax brown, opaque, slightly ochreous in front of humeri; pleuræ ochreous or brownish-ochreous, with a broad brown band from humeri to pectus (between fore and intermediate coxæ). Halteres brown. Abdomen dark green or brown,* the segments more or less distinctly banded across the middle with lighter colour; genitalia ochreous-brown. Legs dark brown, ochreous towards base of femera, with yellow coxæ; genua slightly, and tip of metatarsus and last four joints of tarsi entirely, white. Wings almost hyaline, very slightly clouded with pale brownish on the cross-veins and round the apical margin; a whitish spot at each end of the stigma; stigma and veins brown, very distinct; anal angle of wing only slightly projecting, consequently the seventh longitudinal vein very close to the margin; great cross-vein rather more than half its length distant from inner end of fourth posterior cell.

Hab.—Lawson, Blue Mountains (Masters); North Shore and Mossman's Bay, near Sydney (Skuse). September to January. Nine specimens.

* I do not remember what the colour was in freshly caught specimens, but it was probably always green.

388. DOLICHOPEZA MONTICOLA, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·085 inch | ... | 2·14 millimètres. |
| Expansé of wings..... | 0·300 × 0·065 | ... | 7·62 × 1·66 |
| Size of body..... | 0·260 × 0·030 | ... | 6·62 × 0·76 |
| ♀.—Length of antennæ..... | 0·065 inch | ... | 1·66 millimètres. |
| Expansé of wings..... | 0·360 × 0·080 | ... | 9·13 × 2·02 |
| Size of body..... | 0·340 × 0·030 | ... | 8·62 × 0·76 |

Head, rostrum, basal joints of antennæ, and (generally) first two joints of palpi yellow; occiput, suctorial labella, terminal joints of palpi, and flagellar joints of antennæ dark brown; antennæ short, a little longer in ♂ than in ♀, the flagellar joints with two or three long stiff hairs near the base. Thorax brown, opaque, with a broad whitish or pale yellow stripe from humeri, across pleuræ, to base of hind coxæ; pronotum sometimes pale yellow; often indistinct traces of two pale brown lines terminating at suture; the latter, a spot above origin of wings, and the scutellum and metanotum similarly pale. Halteres dark brown, pale at the base of stem. Abdomen dark brown (? green in fresh specimens), the segments with an ochreous or pale greenish lateral spot at the middle of their length; genitalia (Pl. VI., fig. 24) more or less tinged with ochreous. Legs dark brown, coxæ and base of femora ochreous, the fore and intermediate coxæ with a brown spot at the base; genua slightly, and tip of metatarsus with following four joints entirely, white. Wings sub-hyaline, the veins and apex slightly clouded with pale brownish; a whitish spot at each end of stigma; stigma and veins brown, very distinct; anal angle of wing only a little projecting, consequently the seventh longitudinal vein close to the margin; great cross-vein usually less than its length distant from inner end of fourth posterior cell.

Hab.—Mount Kembla, Illawarra district (Skuse). November. Five specimens.

II. ♂ *forceps with long digitiform appendages.*

389. DOLICHOPEZA CINEREA, Macquart.

Apeilesis cinerea, Macq., Dipt. Exot. Suppl. I. p. 8, pl. 1, fig. 3, 1846; O.-Sacken, Studies, I. p. 151, 1886.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·135 inch | ... | 3·42 millimètres. |
| Expanse of wings..... | 0·420 × 0·095 | ... | 10·66 × 2·39 |
| Size of body..... | 0·330 × 0·035 | ... | 8·38 × 0·88 |
| ♀.—Length of antennæ..... | 0·090 inch | ... | 2·27 millimètres. |
| Expanse of wings..... | 0·420 × 0·095 | ... | 10·66 × 2·39 |
| Size of body..... | 0·330 × 0·035 | ... | 8·38 × 0·88 |

Greyish-ochreous. Occiput, palpi and flagellar joints often darker greyish; antennæ in ♂ considerably longer than in ♀, the flagellar joints with a few short stiff hairs near the base. Thorax opaque, often with three broad greyish or light brownish stripes. Halteres with a slightly infuscated club. Abdomen with the terminal segments sometimes tinged with brown, or bordered with brown posteriorly; ♂ genitalia concolorous with rest of body; lamella terminalis supra bidentate in the middle, with a deep emargination between; digitiform appendages long, bidentate on the inner side towards the middle; ♀ ovipositor brownish-ochreous, shining. Legs uniformly greyish. Wings with a light greyish appearance; an indistinct paler reflection at each end of stigma; stigma and veins grey; anal angle of wing distinct; great cross-vein not its length distant from inner end of fourth posterior cell.

Hab.—Tasmania (Verreaux); generally distributed in N.S.W. (Masters and Skuse). September to February. About sixty examples.

Obs.—The above-described seems to best correspond with Macquart's very brief description, and is the commonest of our species.

390. DOLICHOPEZA PLANIDIGITALIS, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·150 inch | ... | 3·81 millimètres. |
| Expanse of wings..... | 0·380 × 0·80 | ... | 9·64 × 2·02 |
| Size of body | 0·300 × 0·035 | ... | 7·62 × 0·88 |

Head greyish; front, rostrum, and basal joints of antennæ ochreous-yellow; flagellar joints, suctorial labella, and palpi brown or greyish-brown; antennæ the length of head and thorax taken together, the flagellar with some short stiff hairs near the base. Thorax greyish-brown with some ochreous, opaque, with three indistinctly darker stripes above, the intermediate stripe the most distinct, cuneiform. Halteres infuscated, the base of the stem yellow. Abdomen ochreous, the segments infuscated with brown anteriorly and posteriorly, the last one or two segments and genitalia usually brown; lamella terminalis supera bidentate in the middle with a deep emargination between; digitiform appendages long, smooth (Pl. vi. fig. 25). Legs uniformly ochreous-grey. Wings with a light greyish appearance; an indistinct paler reflection at each end of stigma; stigma and veins brown; anal angle of wing distinct; great cross-vein not its length distant from inner end of fourth posterior cell.

Hab.—Wheeny Creek, Hawkesbury district, N.S.W. (Skuse). Four specimens in January.

Obs.—Easily distinguished from *D. cinerea*, Macq., by the distinctly brown-ringed abdomen, darker thorax, and smooth digitiform appendages of the ♂ genitalia.

391. DOLICHOPEZA LONGIFURCA, sp.n. (Pl. iv. fig. 1).

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·110 inch | ... | 2·79 millimètres, |
| Expanse of wings..... | 0·450 × 0·115 | ... | 11·43 × 2·92 |
| Size of body..... | 0·430 × 0·045 | ... | 10·92 × 1·13 |

Brown. Front, rostrum, and joints of scapus ochreous; flagellar joints irregularly beset with short stiff hairs. Thorax

lighter brown than head and abdomen, with very indistinct traces of stripes. Halteres infuscated, the base of stem yellow or ochreous. Valves of ovipositor ochreous towards the tip. Legs greyish-brown, the genua slightly ochreous. Wings almost hyaline, with a very pale brownish tint, more distinct in costal cells and about the veins; an indistinct whitish reflection at each end of stigma; stigma and veins brown, distinct; second posterior cell long and narrow, with a short petiole; anal angle of wing distinct; great cross-vein half its length distant from inner end of fourth posterior cell.

Hab.—Sydney (Masters and Skuse). Three specimens.

Obs.—Easily distinguished from the next, *D. brevifurca*, which it most resembles, by the length and narrowness of the second posterior cell and situation of the great cross-vein.

392. DOLICHOPEZA BREVIFURCA, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0.150 inch | ... | 3.81 millimètres. |
| Expanse of wings..... | 0.410 × 0.100 | ... | 10.41 × 2.54 |
| Size of body..... | 0.380 × 0.040 | ... | 9.64 × 1.01 |
| ♀.—Length of antennæ..... | 0.100 inch | ... | 2.54 millimètres. |
| Expanse of wings..... | 0.470 × 0.115 | ... | 11.93 × 2.92 |
| Size of body..... | 0.450 × 0.045 | ... | 11.43 × 1.13 |

Brown. Face, rostrum and joints of scapus sometimes ochreous or brownish-ochreous; ♂ antennæ considerably longer than those of ♀, the flagellar joints in both sexes beset near the base with short stiff hairs. Thorax with three darker brown broad stripes; the lateral ones interrupted at the suture but continued beyond, intermediate one cuneiform. Halteres infuscated, ochreous at base. Abdomen ochreous, with five or six broad rings of black or dark brown; first ring at middle of second segment, the remainder covering the incisions; ♂ genitalia with the lamella terminalis supra bidentate with a deep emargination between; digitiform appendages long, bidentate on the inside, the first tooth about the

middle and second near the tip. Legs uniformly brown. Wings almost hyaline, with an indistinct greyish or brownish tint, particularly in neighbourhood of the veins; a whitish spot at each end of stigma; stigma and veins brown, distinct; second posterior cell broad, shorter than or equal in length to distance between its inner end and small cross-vein; anal angle of wing distinct; great cross-vein its length distant from inner end of fourth posterior cell.

Hab.—Wagga Wagga (Skuse); Jindabyne, 3000 ft., and Moonbar, 3500 ft., Mount Kosciusko, N.S.W. (Helms), *four specimens in Coll. Aust. Museum.*

Obs.—I took three specimens at Wagga Wagga in the month of October; Mr. Helms captured the Kosciusko specimens in March.

393. *DOLICHOPEZA VARIPES*, sp.n. (Pl. iv. fig. 2).

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0.110 inch | ... | 2.79 millimètres. |
| Expanse of wings..... | 0.350 × 0.070 | ... | 8.88 × 1.77 |
| Size of body..... | 0.310 × 0.030 | .. | 7.87 × 0.76 |
| ♀.—Length of antennæ..... | 0.075 inch | ... | 1.89 millimètres. |
| Expanse of wings..... | 0.350 × 0.070 | ... | 8.88 × 1.77 |
| Size of body..... | 0.330 × 0.030 | ... | 8.38 × 0.76 |

Head and thorax greyish or brownish-ochreous; rostrum and joints of scapus usually ochreous; suctorial labella, palpi and flagellar joints brown; ♂ antennæ considerably longer than those of ♀; the flagellar joints with two or three short stiff hairs near the base. Thorax usually with more or less distinct traces of three rather narrow brown stripes (sometimes very distinct), the intermediate ones interrupted at, but continued beyond, the suture. Halteres with black club. Abdomen ochreous, broadly ringed with dark brown: the rings, which cover the anterior two-thirds of each segment, also extend over the posterior border of the preceding segment; second segment more or less distinctly ringed across the middle; ♂ genitalia with the lamella terminalis superabidentate with a deep emargination between; digitiform appendages

long, bidentate on the inside at the tip. Legs brown, with coxæ and basal portion of femora ochreous; genua slightly white; hind tibiæ (only) with a broad ring of white at the tip; tip of metatarsus and following four tarsal joints white. Wings perfectly hyaline, with a very faint indication of a spot of light reflection at each end of stigma; veins and stigma brown, distinct; anal angle very slight; seventh longitudinal vein short, close to the margin; great cross-vein its length distant from inner end of fourth posterior cell.

Hab.—Almost everywhere in N.S.W. (Masters and Skuse). September to January. About forty specimens before me.

Obs.—The hind tibiæ only are tipped with white, which at once distinguishes this species.

Genus 2. TANYPREMNA, O.-Sacken.

Tanypremna, O.-Sack., Biol. Cent. Amer. Dipt. p. 19, pl. 2, fig. 2, 1886; Studies I. p. 163.

“Very closely allied to *Brachypremna*; the differences are: the prothorax has no neck-like prolongation, the head is closely applied to it; the seventh vein does not run into the anal angle close alongside the margin of the wing, but has the ordinary oblique position; the præfurca is shorter, more straight in its course, more oblique in its position; the remaining section of the second vein less sinuate; the abdomen is comparatively longer; the metanotum less horizontal, more sloping” (Osten-Sacken).

Rostrum short, pubescent; nasus very distinct, with a few hairs at the tip. Front narrow; eyes prominent. Palpi long; second and third joints about equal in length, the former broader towards the apex; first joint shorter; fourth joint very long, longer than the preceding three taken together. Antennæ short, beset with very short hairs (? always), 12-jointed; * first joint of the scapus

* Baron Osten-Sacken counted eleven joints in *T. opilio*, O.-Sack., but in *T. manicata*, O.-Sack., there are more (possibly only twelve).

elongate, second short, almost globose; first few flagellar joints elliptic or ovate, progressively shortening and narrowing, the last few joints (the terminal four in *T. fastidiosa*) linear (Pl. VI., fig. 27, ♂ antennæ of *T. fastidiosa*). Collare inconspicuous. Thorax elongate-ovate; scutellum small; metanotum convex. Abdomen rather slender, at least twice the length of the thorax; ♂ forceps not incrassate, of simple structure (Pl. VI., fig. 26, forceps of *T. fastidiosa*); ♀ ovipositor with rather small straight pointed valves. Legs very long and slender; all tibiæ with a pair of small spurs; tarsi twice the length of tibiæ, the metatarsal joint very long. Wings longer than the abdomen. Discal cell present.

According to the generic description of *Brachypremna*, which I understand to agree in the main with this genus (of which I have not seen the original diagnosis), one of the most striking features is the perpendicular position of the anterior branch of the second longitudinal vein, which is inserted at the point where the first vein incurves into the second, and looks like a cross-vein; in *T. fastidiosa*, however, this branch is obliquely situated.

394. TANYPREMNA FASTIDIOSA, sp.n. (Pl. IV., fig. 3).

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·070 inch | ... | 1·77 millimètres. |
| Expanses of wings..... | 0·600 × 0·130 | ... | 15·24 × 3·30 |
| Size of body..... | 0·410 × 0·070 | ... | 10·41 × 1·77 |
| ♀.—Length of antennæ..... | 0·070 inch | ... | 1·77 millimètres. |
| Expanses of wings..... | 0·670 × 0·150 | ... | 17·01 × 3·81 |
| Size of body..... | 0·500 × 0·075 | ... | 12·70 × 1·89 |

Greyish-ochreous. Palpi and antennæ (except first joint of the scapus) brown. Thorax with four pale brown (sometimes very indistinct) narrow stripes extending to suture; intermediate stripes confluent posteriorly; lateral ones short, rather broader and less distinct than the intermediate; hind portion of thorax to metanotum pale brown, with a more or less distinct median line from suture, usually very indistinct on metanotum; pleuræ and coxæ

somewhat hoary. Halteres with a brown stem. Abdomen more or less tinged with brown or brownish, usually on the terminal segments; genitalia ochreous. Legs long and very slender. Wings with pale greyish cloudings, the clear spaces appearing whitish when viewed at a certain obliquity; two very noticeable whitish spaces occur on the posterior margin, the first, usually squarish, at tip of seventh longitudinal vein, the second triangular, beneath tip of sixth longitudinal; most of the cells at apex of wing with a central clear space, it really being the veins which are clouded. Anterior branch of second longitudinal obliquely situated, the first longitudinal terminating in it close to the base; ultimate section of second longitudinal vein a little arcuate, bending anteriorly towards the tip; præfurca short, slightly arcuated at its origin, in line with remaining portion of second longitudinal; discal cell longer than wide, pentagonal, in punctiform contact with the fifth posterior.

Hab.—Lawson, Blue Mnts., and Berowra, N.S.W. (Masters); Middle Harbour, near Sydney (Skuse). Five specimens.

Section II. CTENOPHORINA.

First longitudinal vein usually terminating in the anterior branch of the second longitudinal in such a manner that the ultimate section of the branch appears as a continuation of the first longitudinal. Normal number of antennal joints thirteen in both sexes; in ♂ the flagellar joints with a variable number of branches, or rarely (in *Prionota*) only serrate; in the ♀ simple, serrate, or rarely with short branches. Head closely applied to the thorax; front broad; eyes round. Rostrum as short as, or shorter than in *Pachyrrhina*, gibbose in front; nasus present, obtuse, hairy. Legs short and stout; tarsi usually shorter than the tibiae; metatarsal joint shorter than, equal in length to, or but little longer than the remaining four joints taken together; ungues large. Genitalia of ♂ of a complicated structure, sometimes (in *Ctenophora*) with a long protruding adminiculum.

This section awaits definition. The above enumerated characters derived from Baron Osten-Sacken's comparative survey of this section and the TIPULINA, will be found to distinguish the majority of the genera. But the genus now described under the name *Clytocosmus*, though exhibiting all the striking features of the section, differs in possessing a long, straight, glabrous rostrum, destitute of a nasus, and agrees with the TIPULINA in the position of the anterior branch of the second longitudinal vein.

Baron Osten-Sacken omitted Macquart's *Ctenogyna* in his synopsis of the described *Ctenophoræ* (Studies I., p. 166), and with the assistance of only incomplete information about the insect evidently seemed inclined (l.c. p. 177-178) to regard it as a near relative of *Ptilogyna*. Macquart's figure of the head is misleading, as it does not show the nasus.

SYNOPSIS OF GENERA.

I. *Antennæ branched in ♂ only.*

♂ antennæ with alternate long and short branches; the long ones not much longer than the short; ♀ antennæ not much longer than the head. *Dictenidia*, Brullé.

♀ antennæ as long as the thorax; joints cylindrical, decreasing in length from the third to twelfth; third very long. *Xiphura*, Brullé.

Antennæ longer than the head; ♂ antennæ with alternate long and short branches, the long ones sometimes much longer than the short; twelfth joint with only one pair of branches. Adminiculum conspicuous. *Ctenophora*, Meig.

♂ antennæ with four equally long branches on the same joint; the twelfth joint with two pairs of branches. Adminiculum wanting. *Pselliophora*, O.-Sack.

II. *Antennæ not branched in either sex.*

Antennæ considerably longer than the head, serrate; third and following joints slender at the base and enlarged into a broad knob towards the underside. *Prionota*, v. d. Wulp.

III. *Antennæ with a certain number of branched joints in both sexes.*

♀ antennæ with the second to eighth flagellar joints with a pair of short branches (♂ unknown). *Ctenogyna*, Macq.

♂ antennæ with first nine, ♀ with first eight, flagellar joints with a pair of short branches, shorter in ♀ than in ♂; the terminal joints filiform, densely beset with almost erect hairs. *Clytocosmus*, Sk.

Genus 3. CTENOGYNA, Macquart.

Ctenogyna, Macq., Dipt. Exot. I. p. 42, 1838; O.-Sacken, Studies I. p. 177, 1886.

First longitudinal vein terminating in anterior branch of second longitudinal in such a way that the latter appears as a continuation of the first. Rostrum very short, porrect, with an obtuse, hairy nasus. Antennæ 13-jointed; in ♀ the first flagellar joint with a short tooth-like branch beneath, the next seven joints provided with two short, somewhat fusiform, branches laterally at the base; the three terminal joints small, simple, ovate.

Head closely applied to the thorax; front tolerably broad, convex, clothed with short hairs. Rostrum about half the length of the head, pubescent, with a distinct, obtuse, hairy nasus. Eyes almost ovate, prominent. Palpi short; first and third joints shortest, cylindrical, about equal in length; second joint robust, thicker at apex, about one-third longer than the first or third; fourth slender, scarcely as long as the next preceding two taken together. Antennæ 13-jointed, beset with very short hairs; first joint of the scapus long, obconical, second joint cyathiform; the first flagellar joint with a short tooth-like branch beneath, the next seven joints cylindrical or subcylindrical, provided with two lateral, somewhat fusiform, branches at the base, about one-third longer than the joints; terminal three joints small, simple, ovate. Collare inconspicuous, compressed. Thorax convex, elongate-ovate; transverse suture distinct; scutellum small; metanotum convex. Abdomen more than twice the length and

about the width of the thorax; first segment short, half the width of the third; second truncate-conical; fourth and fifth widest, short; sixth and seventh narrowing; ovipositor with two straight, slender, pointed upper valves, the lower ones also straight, but thicker, about $\frac{2}{3}$ the length of the upper. Legs tolerably short and stout, densely clothed with short semi-erect hairs; tibiæ about equal in length to the femora, armed with a pair of spurs; tarsi rather shorter than tibiæ, the metatarsal joint rather shorter than the remaining four joints taken together; ungues large, smooth. Wings about length of the entire insect, broad, with a distinct anal angle. First longitudinal vein terminating in anterior branch of second near the base in such a manner that the remaining portion of the branch appears as a continuation of the first. Second posterior cell petiolate. Fifth posterior cell longer than wide, nearly or quite in punctiform contact with the discal cell.

Macquart was mistaken when he asserted that the antennæ are 14-jointed, he evidently counted the tenth joint as two; also, the first flagellar joint is not provided with a pair of branches, but is produced beneath.

395. CTENOGYNA BICOLOR, Macquart. (Pl. IV., fig. 4.)

C. bicolor, Macq., Dipt. Exot. I. p. 43, pl. 2, figs. 2 and 2a., 1838.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·120 inch | ... | 3·04 millimetres. |
| Expansive of wings..... | 0·540 × 0·160 | ... | 13·70 × 4·06 |
| Size of body..... | 0·540 × 0·090 | ... | 13·70 × 2·27 |

Head brown, or black, pubescent; face, genæ, rostrum and palpi brownish-fulvous, the nasus and last two joints of palpi sometimes brown; antennæ black or blackish-brown, the two joints of the scapus fulvous or brownish-fulvous; first flagellar joint with a single short branch beneath; the second to eighth cylindrical, with a short branch on each side at the base; remaining three terminal joints ovate. Collare fulvous. Thorax fulvous to

brownish-fulvous, dull, traversed by two rows of yellowish hairs. Halteres brown (fulvous in old specimens). Abdomen dull black or brown, with the first one or two segments, the venter, and ovipositor fulvous or brownish-fulvous. Legs fulvous, with the tip of femora, apical half of tibiae, and entire tarsi, black. Wings blackish (much paler in old specimens), the costal cells and stigma darker than the rest; veins black. Auxiliary vein running close to first longitudinal vein, joining it about opposite inner end of second sub-marginal cell; first longitudinal terminating in anterior branch of second longitudinal vein near the base; petiole of first sub-marginal cell sometimes as much as twice the length of the anterior branch; petiole of second posterior cell short (in one specimen extremely short); discal cell usually squarish, longer than broad, almost or quite in punctiform contact with fifth posterior.

Hab.—Upper Hunter, N.S.W., and Gayndah, Q. (Masters); Mount Kembla, Illawarra District (Skuse). November. Four specimens.

Obs.—Macquart did not know to what country this insect belonged, but conjectured that it was probably Australia.

Genus 4. CLYTOCOSMUS, gen. nov.

Anterior branch of second longitudinal vein originating from that vein a little beyond the termination of the first longitudinal vein and not appearing as the continuation of it. Rostrum long, directed downwards, without a nasus. Antennæ 13-jointed; in ♂ first nine, in ♀ first eight, flagellar joints provided with two short branches, which are much shorter in the ♀ than in the ♂; the terminal joints irregularly beset with almost erect hairs. ♂ genital organs probably of complicated structure, withdrawn into the anal segment; ♀ ovipositor with long, straight, valves.

Head closely applied to the thorax; front broad, flattened, at a right angle with the plane of face and rostrum, with a sparse, scarcely noticeable pubescence (Pl. iv., fig. 5c). Rostrum longer than the head, glabrous; nasus wanting. Eyes round, rather prominent. Palpi short; first three joints of almost equal length, the third rather

thicker and shorter than the others ; fourth joint shorter than the preceding three taken together. Antennæ 13-jointed in both sexes ; first joint of the scapus long, obconical, second short, cyathiform ; in ♂ (Pl. iv., fig. 5a) the first nine flagellar joints short, subcylindrical, with a few inconspicuous hairs on the upper side, and a pair of short tolerably stout branches, the latter about $\frac{1}{3}$ longer than the joints ; tenth joint filiform, four times the length of last, rather thickly and distinctly beset with almost erect hairs ; terminal joint short, similarly haired to the last ; in ♀ (Pl. iv., fig. 5d) the first eight flagellar joints with a pair of very short branches, about equal in length to the joints ; ninth joint rather longer than eighth, subfusiform ; tenth filiform, gradually growing clavate at apex, twice the length of the last ; terminal joint minute ; the terminal simple joints beset with hairs as in ♂. Collare inconspicuous, compressed. Thorax large, convex, elongate-ovate ; transverse suture distinct ; pleuræ with a small, distinct, pointed tubercle before the origin of the wings ; also metathorax with a rather more prominent similar protuberance immediately above the origin of the halteres ; scutellum small ; metanotum convex. Abdomen twice the length of thorax, wide, thick, somewhat depressed ; first segment short, scarcely half the width of the third ; second truncate-conical ; third and fourth the widest, rather more than half the length of the second ; fifth to seventh short, gradually narrowing in width ; ♂ genital organs probably of complicated structure, withdrawn into the anal segment, with no protruding adminiculum ; ♀ ovipositor with the upper valves long, straight, very slender and pointed, the lower ones about two-thirds the length of the upper, straight, moderately thick, pointed. Legs comparatively short and stout, glabrous to the naked eye, but densely clothed with minute pubescence ; tibiæ shorter than the femora, especially the fore and intermediate pairs, the two hind pairs armed with a pair of spurs, the fore pair with only one ; tarsi shorter than the tibiæ, the metatarsal joint rather shorter than the remaining four joints taken together ; ungues strong. Wings in ♂ rather longer, in ♀ rather shorter than the abdomen, broad, with a distinct anal angle. First longitudinal vein ter-

minating in second a little before the origin of the anterior branch, consequently the latter not appearing as a continuation of the former. Second posterior cell petiolate. Fifth posterior cell large, its length and width about equal, in punctiform contact with the discal.

The remarkably fine insect, for which I am compelled to institute this new genus, is evidently intermediate between the *Ctenophora* and those *TIPULINA* possessing branched antennæ and wanting the nasus to rostrum, and seems to render a satisfactory division of the genera into groups hopeless. The robust glabrous body, striking colours, 13-jointed branched antennæ, stout legs, short tarsi, etc., at once stamp the insect as one of the *CTENOPHORINA*, whilst the long glabrous rostrum, perfectly destitute of a nasus, and the position of the anterior branch of the second longitudinal vein remind one of *Ptilogyne*, *Plusiomyia* and their relatives, though the structure of the head and direction of the rostrum quite differ. In short, *Clytocosmus* is more of a *Ctenophora* than a *Tipula*, but the question is, should it occupy an isolated position?

Having only one specimen of the ♂, and the genitalia being in a dried retracted state, I am compelled to postpone an examination of these organs.

396. *CLYTOSMUS HELMSI*, sp.n. (Pl. iv., fig. 5.)

♂.—Length of antennæ..... 0.250 inch ... 6.34 millimètres.
 Expanse of wings..... 0.760 × 0.220 ... 19.32 × 5.58
 Size of body..... .. 0.730 × 0.240 ... 18.54 × 6.09

♀.—Length of antennæ..... 0.180 inch ... 4.56 millimètres.
 Expanse of wings..... 0.850 × 0.250 ... 21.58 × 6.34
 Size of body..... .. 1.060 × 0.240 ... 26.94 × 6.09

Opaque. Entire head, rostrum and first joint of antennæ reddish-fulvous; suctorial labella, palpi, and remainder of antennæ black; ♂ antennæ with the first 9 flagellar joints having a moderately long branch on each side about the middle, progressively decreasing in length, the tenth joint filiform and with the short terminal joint beset with hairs; ♀ with the first 8 flagellar joints

having a short, tooth-like branch on each side ; ninth joint almost fusiform, tenth filiform growing gradually thicker towards the apex, both beset with hairs ; terminal joint very small. Prothorax black. Thorax reddish-fulvous above, the anterior margin bordered with a hoary white line, applied to which is a more or less well-defined black spot, extending backwards sometimes as far as half way to the transverse suture, traversed along the middle by a more or less distinct white line which issues from the line along the anterior margin ; the mesothorax more or less distinctly bordered laterally and posteriorly with a hoary white line ; humeral pits black ; pleuræ velvety black, mottled with several brown and white spots ; transverse suture black at the middle, forming a triangular spot, from the posterior angle of which a dark line extends backwards to the scutellum ; scutellum velvety black, with two sub-triangular hoary white spots ; metanotum velvety black. Halteres black. Abdomen velvety black ; first segment slightly bordered with whitish or greyish anteriorly, with a round white spot on the sides ; second marked near the hindmargin, from each side, with a white transverse stripe ; third, fourth and fifth with four more or less equidistant white spots, the two intermediate spots on the fifth segment larger, oblong, sometimes confluent with the lateral spots ; sixth segment with a white spot on each side ; anal segment and genitalia entirely reddish-fulvous in both sexes ; venter more or less tinged with obscure reddish-fulvous and sometimes with a beautiful yellowish-white bloom when viewed at a certain obliquity. Legs black ; the coxæ marked with a large hoary white spot. Wings with a pale fulvous tint, more distinctly anteriorly ; veins fulvous ; stigma indistinct.

Hab.—Moonbar, Mount Kosciusko, 3-3500 ft., N.S.W. (Helms). Three specimens in *Coll. Australian Museum*. March.

Obs.—This magnificent insect is dedicated to its discoverer Mr. R. Helms.

Section III. TIPULINA.

This section is as difficult to define as the *DOLICHOPEZINA* and *CTENOPHORINA*, and possibly will ultimately be subdivided.

Were it not for the existence of some Australian and South American forms the remaining genera, as far as they are known, might be considered to form a tolerably compact section.

The insects here included may usually be distinguished from *DOLICHOPEZINA* by the possession of 13- (or more) jointed antennæ, a discal cell, posterior cell in contact with the discal, moderately long præfurca, oblique position of the anterior branch of the second longitudinal vein, and character of the male genital organs; while, on the other hand, they may be distinguished from the *CTENOPHORINA* by their slender form, long slender legs, &c.; but until our knowledge of the *Tipulidæ*-longipalpi is more extended, a satisfactory division into sections seems impossible, though likely enough increased acquaintance with known genera and the discovery of new forms may render the task still more impracticable.

SYNOPSIS OF GENERA.

I. NO DISTINCT NASUS TO ROSTRUM; ♂ FORCEPS OF SIMPLE STRUCTURE.

A. Antennæ pectinate, with a variable number of joints.

1. Antennæ 13-jointed in ♂, 15-jointed in ♀.

a. ♂ antennæ with long branches.

* *Second submarginal and discal cells in complete contact.*

♂ antennæ: first flagellar joint short, with a long branch on the underside; second to eighth with three long branches, one on each side at the base and the other beneath at the middle; on the eighth joint (which is much prolonged) the third branch short and situated near the apex; three cylindrical terminal joints. ♀ antennæ: first flagellar joint short, with a short branch beneath; second to eighth with a short branch on each side at the base, those on the outside rather longer, especially the middle ones; five cylindrical terminal joints. *Ptilogyne*, Westw.

** *Second submarginal and discal cells not in contact, separated by small cross-vein.*

♂ antennæ: first flagellar joint short, without a branch; second to eighth with a single long branch on the outer side; eighth joint not much longer than the preceding ones; three cylindrical terminal joints.

Platyphasia, Sk.

b. ♂ antennæ with short branches.

Div. 1. ♂ and ♀ antennæ: first flagellar joint tolerably long, thickened at apex, or even with a short branch beneath; second to seventh with a short branch on each side at the base; in ♂ with four, in ♀ with six long cylindrical terminal joints.

Div. 2. ♀ antennæ: first flagellar joint short, with a short branch beneath; second to seventh or ninth with a short branch on each side at the base; four or six short cylindrical terminal joints. *Plusiomysia*, Sk.

B. Antennæ simple.

I. *Antennæ 11-jointed in ♂, 13-jointed in ♀.*

♂ antennæ about length of entire body, densely beset with short erect hairs; ♀ antennæ about length of thorax.

Habromastix, Sk.

2. *Antennæ 13-jointed (? in both sexes).*

Antennæ short.

Phymatopsis, Sk.

II. DISTINCT NASUS TO ROSTRUM; ♂ FORCEPS USUALLY OF COMPLICATED STRUCTURE.

A. Antennæ pectinate, 13-jointed, in both sexes; ♂ forceps of simple structure. Rostrum prolonged.

Div. 1. Antennæ bipectinate; first flagellar joint short, without a branch; second to seventh with a pair of short branches; four long cylindrical terminal joints.

Div. 2. Antennæ unipectinate; first flagellar joint without a branch; second to seventh with a single short branch; four long cylindrical terminal joints.

Ozodicerca, Macq.

B. Antennæ simple, sometimes serrate.

1. *Antennæ short in both sexes, with a variable number of joints; and a certain number of linear terminal joints. Rostrum short and stout.*

a. Genitalia not protruding in either sex.

Antennæ 7-jointed (? in both sexes); first joint of scapus nearly half the length of entire antennæ. Palpi with terminal joint short. *Semnotes*, Westw.

Antennæ 10-jointed; first joint of scapus not one-third the length of entire antennæ. Palpi with the terminal joint long, flagelliform. *Leptotarsus*, Guérin.

b. Genitalia protruding in both sexes; ♂ forceps of rather simple structure.

Antennæ 12-jointed in ♂, 14-jointed in ♀; linear terminal joints beset with bristly hairs. *Acracantha*, Sk.

2. *Antennæ usually short, sometimes very long, normally 13-jointed in both sexes, sometimes more.*

a. Genitalia protruding in both sexes.

* *Antennæ serrate.*

Nasus short (?). Abdomen short, pubescent. Palpi with the terminal joint long, flagelliform. Venation as in *Tipula*. *Stygeropis*, Loew.

Nasus long. Abdomen long, cylindrical, glabrous. Palpi with terminal joint long, flagelliform. ♂ forceps of rather simple structure. Last section of second longitudinal vein arcuate. *Ischnotoma*, Sk.

** *Antennæ simple, often filiform.*

Rostrum shorter than head. Palpi with terminal joint short. ♂ forceps with large foliaceous appendages. *Longurio*, Loew.

Rostrum as long as head. Palpi with terminal joint long, flagelliform. ♂ forceps not incrassate, short. Last section of second longitudinal vein arcuate. *Holorusia*, Loew.

Rostrum long. Palpi with terminal joint long, flagelliform. ♂ forceps moderately incrassate. *Tipula*, Linn.

Rostrum short. Palpi with terminal joint long, flagelliform. Antennæ 13- to 19-jointed. Second posterior cell usually sessile. Body-colour usually yellow, with three black stripes in the thorax. ♂ forceps moderately incrassate. *Pachyrrhina*, Macq.

b. Genitalia not protruding in either sex.

♂ antennæ sometimes very long and filiform, often as short as in ♀. Front rather broad, with a tubercle above the antennæ (more prominent in ♂ than in ♀). Body short. *Macromastia*, O.-Sack.

I. NO DISTINCT NASUS TO ROSTRUM; ♂ FORCEPS OF SIMPLE STRUCTURE.

A. Antennæ pectinate, with a variable number of joints.

1. *Antennæ 13-jointed in ♂, 15-jointed in ♀.*

a. ♂ antennæ with long branches.

* *Second submarginal and discal cells in complete contact.*

Genus 5. PTILOGYNA, Westwood.

Ptilogyne, Westw., Lond. and Edin. Phil. Mag. VI. p. 280, 1835; Zool. Journ. V. No. 20, p. 448, 1835; Macquart, Dipt. Exot. I. p. 45, 1838; Westw., Trans. Ent. Soc. Lond. 1881, p. 381; G.-Sacken, Studies, I. p. 175, 1886.

First longitudinal vein joining before, at, or a little beyond origin of anterior branch of second longitudinal vein; second sub-

marginal cell in contact with discal cell, the small cross-vein wanting; second posterior cell sessile. Front moderately broad, with a distinct tubercle above the antennæ. Rostrum shorter than the head; nasus wanting. Antennæ 13-jointed in ♂, 15-jointed in ♀; flagellar joints in ♂ with three rows of very long branches, in ♀ with two rows of very short ones. Genitalia of ♂ not incrassate, of simple structure; the basal piece bearing a curved, horny, pointed, appendage, with a fleshy lobe beneath. (Pl. vi., fig. 28.)

The male antennæ (Pl. vi., fig. 29) have the first flagellar joint short with a single long branch beneath; the second to seventh with a long branch on each side at the base and another at the middle beneath; the eighth joint is considerably longer than the seventh, has the usual two basal branches, but the third is short and situated near the apex beneath. Westwood's figure of the ♂ antennæ (Trans. Ent. Soc. 1881, pl. xix. fig. 14a) shows exactly their character. The female antennæ have only a very short tooth-like branch beneath on the first flagellar joint, the second to eighth with a short branch on each side at the base, those on the outer side nearly twice the length of those on the inner; five short, simple, terminal joints. Westwood says that the ♀ antennæ are 14-jointed, but I can distinctly see five terminal joints. The terminal joints, however, may be subject to modification.

The valves of the ♀ ovipositor are straight and pointed.

The first longitudinal vein sometimes terminates in the anterior branch of the second longitudinal vein, though more often immediately before its base. The complete contact of the second submarginal and discal cells is constant in all specimens examined.

397. *PTILOGYNA RAMICORNIS*, Walker. (Pl. iv., fig. 6.)

Tipula ramicornis, Walk., Ent. Mag. II. p. 469, 1835; *Ptilogyua ramicornis*, Westwood, Lond. and Edin. Phil. Mag. VI. p. 280, 1835; *P. marginalis*, West., Zool. Journ. V. p. 448, pl. 22, figs. 14-15, ♀, 1835; *P. fuliginosa*, Macquart, Dipt. Exot. I. p. 46, pl. 3, f. 2, 1838; *P. Macquarti*, Loew, Linn. Entom. V. p.

392, 1851 ; Osten-Sacken, Cat. N. Amer. Dipt. p. 222, Note 45, 1878 ; *P. picta*, Schiner, Dipt. Novara Exp. Zool. Theil, Bd. II. p. 38, 1868 ; *P. ramicornis*, Westw., Trans. Ent. Soc. Lond. 1881, p. 382, pl. 19, f. 14 ; O.-Sacken, Studies on Tipulidæ, I. 1886, p. 176.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·280 inch | ... | 7·10 millimètres. |
| Expanse of wings..... | 0·680 × 0·160 | ... | 17·26 × 4·06 |
| Size of body..... | 0·720 × 0·090 | ... | 18·28 × 2·27 |
| ♀.—Length of antennæ..... | 0·180 inch | ... | 4·56 millimètres. |
| Expanse of wings..... | 0·760 × 0·180 | ... | 19·32 × 4·56 |
| Size of body..... | 1·000 × 0·115 | ... | 25·40 × 2·92 |

Brownish-ochreous. Front, basal joints of antennæ, rostrum (above), and collare, ochreous ; last four joints in ♂ antennæ, all the branches in both sexes, the palpi and suctorial labella, fuscous-brown or black ; rostrum usually brownish at the sides and beneath. Thorax sub-nitidous, more or less deeply tinged with brown on the pronotum, from which three brownish lines often proceed to the suture ; pleuræ with a brownish oblique stripe or often merely a spot between humeri and origin of wings. Halteres with slightly infuscated club. Abdomen with a longitudinal black (often broad) stripe above and beneath from the anterior margin of second segment ; the segments (except the first) very narrowly bordered with black laterally and posteriorly ; genitalia brownish-ochreous in both sexes. Femora broadly ringed with black at the apex ; tibiae slightly black or fuscous at the apex ; tarsi obscure. Wings hyaline, bordered with pale brown anteriorly, the veins (except sixth and seventh longitudinal) clouded with darker brown ; four small, roundish, hyaline spots in the brown border ; first midway between humeral cross-vein and origin of præfurca ; second immediately before origin of præfurca ; third beneath anterior branch of second longitudinal, and fourth (sometimes very indistinct) at the tip of the last named vein ; posterior half of wings lightly infuscated with greyish. First longitudinal vein joining before, at or a little beyond the base of anterior branch of second longitudinal

vein; second submarginal cell one-third longer than the first posterior cell, in contact with the discal; discal cell septangular in consequence of the sessile character of the second posterior cell.

Hab.—Sydney and other localities in N.S.W. (Masters); Waterloo Swamps, near Sydney, eleven specimens in March (Helms and Skuse); Glass Mountains, Queensland (C. J. Wild).

Obs.—Macquart taking his specimens to have come from N. America, erroneously identified and described them as *Ptilogyne fuliginosa*, Say, originally characterized by Say as a native of that country, under the generic title *Ctenophora*, but considered a *Tipula* by modern authors. Loew discovered the error and suggested that Macquart's species should be called *P. Macquarti*; it had however, been twice characterized and named as an Australian insect by Walker and Westwood three years previously to Macquart's publication. I cannot understand how Schiner could conceive his *P. picta* to be distinct from this species, his description agreeing almost word for word with that drawn up by Walker in 1835.

** *Second submarginal and discal cells not in contact.*

Genus 6. PLATYPHASIA, gen.nov.

First longitudinal vein joining near the base of the anterior branch of second longitudinal; the ultimate section of the branch appearing as a continuation of the first longitudinal; second submarginal cell separated from discal by the small cross-vein; second posterior cell petiolate. Front moderately broad, convex, without a tubercle above the antennæ. Rostrum as long as the head; nasus wanting. Antennæ 13-jointed in ♂, the second to eighth flagellar joints with a single, very long, branch on the outer side. ♂ genitalia of simple structure.

The elegant insect for which the generic name is proposed is certainly more closely allied to *Ptilogyne* than to any other known genus, but may easily be distinguished by the peculiar character of the antennæ (Pl. VI., fig. 30), the absence of a tubercle on the front, the length of the first posterior cell and presence of small

cross-vein, and the petiolated second basal cell. Baron Osten-Sacken (Studies I., p. 177) does not seem to attach more than specific importance to the character of the second submarginal cell in *Ptilogyna*, but that cell seems always to the same extent in contact with the discal in all specimens of *Ptilogyna*; whereas never in any of the related insects have I found any approach to a diminution in the length of the first posterior cell. Consequently I am led to regard this as one of the constant distinguishing characters between *Ptilogyna* and *Platyphasia*. The male holding-forceps are of simple structure, and seem similar to those of *Ptilogyna*, but they cannot be satisfactorily studied in the dried specimen before me.

The tibial spurs are longer than in *Ptilogyna*.

398. PLATYPHASIA PRINCEPS, sp.n. (Pl. IV., fig. 7).

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·160 inch | ... | 4·06 millimètres. |
| Expanse of wings..... | 0·670 × 0·160 | ... | 17·01 × 4·06 |
| Size of body..... | 0·730 × 0·090 | ... | 18·54 × 2·27 |

Black. Head and rostrum with a somewhat hoary pubescence; antennæ with a somewhat hoary bloom; first joint of scapus moderately long, second flattened, cyathiform or annular; first to seventh flagellar joints progressively, but very slightly, lengthening; eighth $\frac{1}{3}$ longer than seventh; three terminal joints about the length of first flagellar joint, but very slender; the second to eight joints with a single long branch at the base on the outer side. Thorax: humeri and collare tinged with reddish-brown; lateral margins, and two short inverted cuneiform stripes hoary with a pale pubescence; pleuræ with hoary patches and pale pubescence; lateral callosity of the metanotum pointed, reddish-brown; above origin of wings and from centre of suture to scutellum hoary; scutellum and metanotum more or less reddish-brown on the margins, hoary. Halteres brown. Abdomen with the first segment hoary grey, and lateral patches of same on the second, third, and fourth segments; fifth and sixth segment almost entirely hoary grey, the seventh only slightly bordered

laterally; genitalia brown. Femora with not quite the basal half reddish-fulvous; hind tibiæ with an indistinct brownish ring near the base. Wings a little infuscated, darker in the costal cell; stigma small, distinct; veins black. Ultimate section of anterior branch of second longitudinal vein appearing as a continuation of the first longitudinal; second posterior cell with a short petiole; discal cell pentangular.

Hab.—Moonbar, Mount Kosciusko, 3-3500 feet, N.S.W. (Helms). A single specimen in March. *In Coll. Australian Museum.*

b. ♂ antennæ with short branches.

Genus 7. PLUSIOMYIA, gen.nov.

First longitudinal vein joining anterior branch of second longitudinal vein near the base, the terminal portion of the branch appearing as a continuation of the first longitudinal; second submarginal cell separated from discal by the small cross-vein; second posterior cell sessile, but usually in not more than punctiform contact with the discal. Front narrow, flattened, almost in same plane with front of rostrum. Rostrum usually considerably longer than the head, with minute, inconspicuous pubescence; nasus wanting. Antennæ 13-jointed in ♂, 15-jointed in ♀; in both sexes a certain number of the flagellar joints provided with a pair of short branches. Tarsi very long in the hind legs. ♂ genitalia not incrassate, of simple structure.

The insects included in this genus, though evidently allied to *Ptilogyne* and *Platyphasia*, offer certain striking differences, but may be divided under two sections. The first division includes species *P. gracilis*, Wlk., *P. spectabilis*, Sk., and *P. Olliffi*, Sk., and are typical of the genus as above defined; the second includes two species, *P. lineata*, Sk., and *P. inornata*, Sk., which are unfortunately known only by ♀ specimens. The peculiar flattened head, almost in line with the front of the long rostrum, is constant throughout; but the front is narrower in the first

division, and the antennæ are different. In the *P. gracilis* division the first joint of the scapus is moderately long (Pl. VI., fig. 31), in *P. lineata* it is longer, and in *P. inornata* very long, nearly one-third the length of entire antennæ (Pl. VI., fig. 32); in the former there are always four simple terminal joints in the ♂, six in the ♀, but in *P. lineata* (♀) there are four, and in *P. inornata* (♀) six simple terminal joints, the second to ninth flagellar joints being branched instead of the second to seventh as in all the other species. If the males of *P. lineata* and *P. inornata* exhibit any important difference in the structure of the antennæ, these two species probably should be referred to another genus. However, I believe *P. inornata* to be the same as the insect referred to by Baron Osten-Sacken (Studies I. p. 178), in which the branches of the antennæ are equally long in both sexes, a third about the middle, first joint remarkably long, &c. In the first division the tarsi are very long, and the second posterior cell is only in punctiform contact with the discal; while in the second the hind tarsi are only about one-third longer than the tibiæ, and the second posterior cell is in complete contact with the discal. Certainly the latter may not be a reliable character.

399. *PLUSIOMYIA GRACILIS*, Walker. (Pl. IV., fig. 8.)

Pedicia gracilis, Walk., List Dipt. Brit. Mus. I. p. 37, 1848 (*sine patria*); *Ozodicera longipedalis*, Westwood, Trans. Ent. Soc. Lond. p. 503, pl. 3, figs. 4, 4a, 4b, 1876; Trans. Ent. Soc. Lond. p. 381, 1881; O.-Sacken, Studies, I. p. 177, 1886.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·240 inch | ... | 6·00 millimètres. |
| Expanse of wings..... | 0·850 × 0·180 | ... | 21·58 × 4·56 |
| Size of body | 0·850 × 0·100 | ... | 21·58 × 2·54 |
| ♀.—Length of antennæ..... | 0·300 inch | ... | 7·62 millimètres. |
| Expanse of wings..... | 1·060 × 0·220 | ... | 26·94 × 5·58 |
| Size of body..... | 1·350 × 0·150 | ... | 34·28 × 3·81 |

Head ochreous, with a whitish bloom; rostrum and basal joints of antennæ fulvous, sometimes more obscure; flagellar joints brown; suctorial labella and palpi black; ♀ antennæ longer than

those of ♂ ; first flagellar joint with a more or less distinct short branch beneath near the apex. Thorax dull brown, with two short longitudinal stripes (from humeri) and the margins ochreous ; sometimes also an indistinct intermediate line from collare to suture ; brown stripe from pronotum to origin of wings, followed beneath on the pleuræ by two broad hoary white stripes separated by a narrow brown one ; pectus more or less brown ; an oblong brown spot between origin of wings and scutellum ; scutellum and metanotum with a hoary bloom. Halteres brown. Abdomen dull greyish-brown, with a more or less fulvous tint, the first few segments almost hoary ; a brown dorsal stripe extending the whole length of the abdomen ; also a similar stripe along the lateral border of the segments ; genitalia fulvous-brown. Coxæ with a hoary bloom ; the remainder of the joints brown, the basal portion (or sometimes the greater portion) of femora and tibiæ more fulvous. Wings whitish, hyaline posteriorly, with brown stripes on the anterior half ; anterior margin between costa and fourth longitudinal vein (except an oblong clear space before origin of præfurca) brown, from base of wing to inner end of discal cell and anterior branch of second longitudinal ; fifth longitudinal vein bordered anteriorly with a brown stripe for its entire length ; also an oblique stripe extending from lower extremity of great cross-vein to tips of second and third longitudinal veins ; seventh longitudinal vein very distinct, slightly infuscated. First longitudinal vein joining anterior branch of second longitudinal at or a little beyond its base ; second posterior cell sessile, in punctiform contact with the discal, or with a very short petiole ; discal cell pentangular.

Hab.—N.S.W. (Masters and Skuse). Several specimens (only one ♂).

Obs. 1.—In one specimen there is an oblique cross-vein in the first posterior cell, joining near inner end of second posterior cell.

Obs. 2.—This insect, first described by Walker under the generic name *Pedicia* from an unknown locality, was afterwards characterized by Westwood as an *Ozodicera*, from Australia. Westwood

(Trans. Ent. Soc. Lond. 1881, p. 381) remarks that *Pedicia gracilis*, Walk., is marked in the British Museum as from New Zealand. It may be found there, but I have not yet heard of its occurrence.

400. *PLUSIOMYIA OLLIFFI*, sp.n. (Pl. iv., fig. 9.)

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·210 inch | ... | 5·33 millimètres. |
| Expand of wings..... | 0·790 × 0·210 | .. | 20·05 × 5·33 |
| Size of body | 0·625 × 0·120 | ... | 15·86 × 3·04 |

Head brown; rostrum and basal joints of antennæ lighter brown; suctorial labella, palpi, and flagellar joints black; first flagellar joint with a distinct short branch beneath near the apex. Thorax dusky brown, opaque, with a narrow median stripe (visible in a certain light only); lateral margins somewhat ochreous; brown from pronotum (and collare) to origin of wings; followed on the pleuræ with a hoary white stripe, beneath which is first a broad brown stripe followed by a broad hoary one next to the coxæ; pectus ochreous-brown; an oblong brownish-ochreous spot between origin of wings and scutellum; scutellum dark brown; metanotum brown, somewhat hoary. Halteres black. Abdomen entirely dusky brown. Coxæ hoary. Remaining joints brownish-ochreous or testaceous, dusky brown towards tips of femora and tibiæ. Wings with the anterior portion (above the fifth longitudinal vein) brown (paler towards the apex), with two large and three small white spots; the posterior portion infuscated with greyish; white below the fifth longitudinal, particularly towards anal angle. First large spot longitudinal, flattened-triangular, situated at distal end of second basal cell, one of its sides parallel with and close to great cross vein; second large spot obliquely situated, oblong, about equal in size to first, extending from posterior margin of discal cell to costa (immediately beyond tip of anterior branch of second longitudinal vein); a small oblong spot immediately before origin of præfurca, another similar one in fourth posterior cell, and lastly a round dot in third posterior cell near its inner end. Ultimate portion of anterior branch of second longitudinal vein

appearing as a continuation of the first longitudinal ; second posterior cell in punctiform contact with the discal ; discal cell pentagonal.

Hab.—Mount Wilson, Blue Mountains, N.S.W. (A. Sidney Olliff). One specimen in January.

Obs.—The length of the body as above stated is undoubtedly below the mark, the specimen before me being much shrunken.

401. *PLUSIOMYIA* *SPECTABILIS*, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·210 inch | ... | 5·33 millimètres. |
| Expanses of wings..... | 0·790 × 0·210 | ... | 20·05 × 5·33 |
| Size of body..... | 1·150 × 0·115 | ... | 29·21 × 2·92 |

Head grey ; rostrum and basal joints of antennæ light brown ; suctorial labella, palpi, and flagellar joints black ; first flagellar joint with a short tooth-like branch beneath near the apex ; branches on the following six joints about $\frac{1}{3}$ longer than the joints. Thorax dull slaty-grey, with faint indication of a yellowish median line ; whitish reflections on the lateral borders ; pleuræ hoary with two narrow longitudinal brown stripes, the first from pronotum (and collare) to origin of wings, the second indistinct, running across the middle of pleuræ ; scutellum and metathorax with a hoary bloom. Halteres ochreous, with a black club. Abdomen greyish-brown, with indistinct blackish dorsal and lateral stripes on the first three or four segments ; the terminal segments more completely suffused with blackish. Coxæ with a hoary bloom. Femora fulvous-brown, black at the apex. Tibiæ black, fulvous-brown at the base. Tarsi black. Wings tinted anteriorly (above the fifth longitudinal vein) with pale brown, paler towards the apex, darker towards the base, with a whitish streak extending from middle of second basal cell to costa (between the tip of the second longitudinal vein and its anterior branch) ; posterior margin greyish, beneath the fifth longitudinal vein whitish, especially towards anal angle. Ultimate section of the anterior branch of the second longitudinal

vein appearing as a continuation of the first longitudinal; second posterior cell in punctiform contact with discal cell; discal cell pentangular.

Hab.—Benalla, Victoria (Helms). A single specimen in November.

402. *PLUSIOMYIA LINEATA*, sp.n. (Pl. v., fig. 10.)

♀.—Length of antennæ..... 0·165 inch .. 4·18 millimètres.

 Expansion of wings..... 0·630 × 0·150 ... 16·00 × 3·81

 Size of body..... 0·860 × 0·090 ... 21·83 × 2·27

Head black; rostrum, suctorial labella and palpi brown; antennæ fulvous deepening into brown, the branches dark brown or blackish; first flagellar joint short, not $\frac{1}{3}$ the length of first joint of scapus, with a short branch about the middle beneath; second to ninth flagellar joints with a pair of lateral branches at the base, most of them twice the length of the joints; four terminal cylindrical joints. Thorax black, opaque; prothorax, pleuræ and metathorax ferruginous or reddish-fulvous; metanotum with a large square black spot almost covering its entire surface. Halteres brown. Abdomen greyish-black, the first few segments fulvous with a dorsal and lateral black stripes which widen and completely suffuse the following segments; ovipositor brownish-ferruginous. Coxæ and femora ferruginous or fulvous, the femora with a brown ring at the apex; tibiæ and tarsi rather more brownish than the femora. In the hind legs the tarsi not much (about $\frac{1}{5}$) longer than the tibiæ. Wings with a pale brownish tint, with a whitish narrow arcuated streak from second basal cell (opposite origin of præfurca), through the discal, including small portion of distal end of first basal cell, and finally entirely filling first posterior cell. Ultimate section of the anterior branch of the second longitudinal vein appearing as a continuation of the first longitudinal; second posterior cell in complete contact with the discal, the latter consequently hexagonal.

Hab.—King George's Sound, Western Australia (Masters). A single specimen.

403. *PLUSIOMYIA INORNATA*, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0.180 inch | ... | 4.56 millimètres. |
| Expanse of wings..... | 0.630 × 0.150 | ... | 16.00 × 3.81 |
| Size of body..... | 0.760 × 0.090 | ... | 19.32 × 2.27 |

Head dull plumbeous; rostrum, suctorial labella and palpi brown; joints of the scapus fulvous, the first long, nearly four times the length of first flagellar joint; flagellar joints brown, with dusky branches, first with a short tooth of a branch beneath the apex; second to seventh with a pair of branches laterally at the base, and a minute tooth of a branch a little beyond the middle beneath; longest lateral branch scarcely twice the length of the joints; six short cylindrical terminal joints. Thorax brown, dull, with indistinct indication of longitudinal stripes; pronotum and lateral margin ochreous or greyish, with an indistinct brown line on pleuræ from behind head to origin of wings; pleuræ light ochreous-brown, somewhat hoary; scutellum and metanotum brown, the posterior border of latter paler. Halteres brown. Abdomen brown, with indistinct traces of dorsal and lateral dark stripes; posterior edge of segments somewhat ochreous; ovipositor ochreous-brown. (Legs wanting in the specimen before me.)* Wings subhyaline, with a very pale brownish tint, ochreous in the costal cell; stigma distinct; veins brown. Ultimate section of the anterior branch of the second longitudinal vein appearing as a continuation of the first longitudinal; second posterior cell in complete contact with the discal, the latter consequently hexagonal.

Hab.—Sydney (Masters). A single specimen.

Obs.—This is apparently the species referred to by Osten-Sacken in his *Studies on Tipulidæ*, I., p. 178.

B. Antennæ simple.

1. *Antennæ 11-jointed in ♂, 13-jointed in ♀.*

* Probably somewhat similar to those in *P. lineata*.

Genus 8. HABROMASTIX, gen.nov.

First longitudinal vein joining anterior branch of the second longitudinal vein at or near the base; præfurca short, not much longer than great cross-vein; second posterior cell sessile or petiolate. Front broad; rather convex. Rostrum about as long as the head, distinctly pubescent; nasus wanting. Antennæ 11-jointed in ♂, about the length of or longer than entire body; 13-jointed in ♀, about the length of thorax. ♂ genitalia of simple structure.

Rostrum about the length of the head, sometimes distinctly hairy; nasus wanting; palpi with the first three joints of about equal length, the second thickened towards the apex; terminal joint equal in length to the two preceding joints in *H. cinerascens* and *H. ornatipes*, the length of the three preceding joints in *H. remota*. Antennæ long, more or less distinctly covered with dense erect hairs; first joint of the scapus obconical, twice the length of the second, the latter cyathiform; flagellar joints progressively decreasing in length and thickness; ♂ antennæ 11-jointed, more or less the length of the entire body; ♀ 13-jointed, more or less the length of the thorax (Pl. VI., fig. 34, *H. cinerascens*). Front broad; rather convex. Collare short. ♂ forceps narrower than the preceding segment, of simple structure (Pl. VI., fig. 33, *H. cinerascens*); ♀ ovipositor with straight valves; the latter long in *H. ornatipes*, the upper and lower being about equal in length, short in *H. cinerascens*, the lower a little shorter than the upper. Legs long and slender; in *H. remota* very long and very slender; tibiæ with minute spurs; unguis minute. In ♂ the tarsi of all the legs twice the length of tibiæ, in ♀ about $\frac{1}{3}$ longer than the tibiæ. Wings lanceolate; anal angle moderately developed. Auxiliary vein joining the first longitudinal vein at inner end of stigma; first longitudinal vein joining anterior branch of second longitudinal vein at or near the base; the latter branch obliquely situated; præfurca short, scarcely longer than great cross-vein in *H. remota*; second posterior cell sessile or with an extremely short petiole in *H. cinerascens* and *H. ornatipes*, with a long petiole in *H. remota*, on account

of the smallness of the discal cell; discal cell pentangular, half the length of the first posterior cell in *H. cinerascens* and *H. ornaticipes*, not quite the length of the petiole of second submarginal cell in *H. remota*; fifth posterior cell in punctiform contact with discal at the middle of its length.

404. *HABROMASTIX CINERASCENS*, sp.n. (Pl. v., fig. 11.)

| | | | |
|----------------------------|---------------|-----|--------------------|
| ♂.—Length of antennæ | 0.470 inch | ... | 11.93 millimètres. |
| Expanse of wings..... | 0.600 × 0.135 | ... | 15.24 × 3.42 |
| Size of body..... | 0.530 × 0.060 | ... | 13.46 × 1.54 |
| ♀.—Length of antennæ | 0.180 inch | ... | 4.56 millimètres. |
| Expanse of wings..... | 0.640 × 0.150 | ... | 16.25 × 3.81 |
| Size of body..... | 0.530 × 0.060 | ... | 13.46 × 1.54 |

Slaty-grey, opaque. Front with a brown median stripe, broader posteriorly. Rostrum hairy, usually tinged with black at the tip and sides; suctorial labella and palpi usually black or brown; flagellar joints of antennæ black or brown; ♂ antennæ 11-jointed, about $\frac{2}{3}$ the length of entire body, flagellar joints long, filiform, densely clothed with minute erect hairs, gradually decreasing in length, the terminal joint short, less than $\frac{1}{3}$ the length of preceding joint; ♀ 13-jointed, about length of thorax, flagellar joints gradually decreasing in length, clothed with extremely minute hairs. Thorax with white hairs; humeral pits and suture between pronotum and collare black; four prominent dark brown stripes before the suture, intermediate pair approximate, extending from pronotum to suture, lateral ones short, extending from below humeri to suture; a pair of dark brown spots on each side behind the suture and opposite the lateral stripe, the anterior spot small, roundish, the hinder one large, almost triangular; transverse suture black towards the middle. Halteres ochreous, with infuscated club. Genitalia testaceous. Legs black, the basal portion of femora and the trochanters fulvous. Wings with very much the appearance of ground glass; some-

what ochreous towards the base, the extreme base and the veins black ; the base and apex of first, and whole of second basal cell, discal cell, first posterior cell, basal half of fourth posterior cell, a small roundish spot immediately beyond the anterior branch of the second longitudinal vein, and two or three streaks in the hinder portion of the wing, whitish : the white imparting a streaked appearance to the wing ; stigma pale brownish. First longitudinal vein joining anterior branch of second longitudinal at or a little beyond the base ; inner end of first posterior cell beyond that of either the second submarginal or discal cell ; second posterior cell with a very short petiole, or sessile, in punctiform contact with the discal ; discal cell half the length of first posterior cell, in punctiform contact with the fifth posterior cell.

Hab.—Walcha, New England, N.S.W. (Mr. J. F. Schofield) ; Moonbar, Monaro, N.S.W., 3-3500 ft. (Helms) ; six ♂ specimens in Coll. Aust. Mus. March.

Obs.—Mr. Schofield informs me that this insect came out of the ground in swarms during the month of March.

405. HABROMASTIX ORNATIPES, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·210 inch | ... | 5·33 millimètres. |
| Expansion of wings | 0·600 × 0·150 | ... | 15·24 × 3·81 |
| Size of body | 0·750 × 0·070 | ... | 19·05 × 1·77 |

Head greyish, much tinged with blackish on the front ; face, rostrum and antennæ brown ; rostrum appearing glabrous under a low power ; palpi dark brown or black ; antennæ 13-jointed, longer than head and thorax taken together, minutely pubescent. Collare and pronotum tinged with blackish. Thorax very similar to that of *H. cinerascens*, yellowish ashy-grey, opaque, with three brown stripes before the suture ; intermediate one broad ; lateral ones narrow, short ; a pair of brown spots on each side behind the suture exactly as in *H. cinerascens* ; transverse suture, anterior margin of scutellum, sides of metathorax, and median stripe and

hinder border of metanotum, brown. Halteres dusky brown. Abdomen testaceous, levigate; first segment greyish, opaque, with a brownish marking; ovipositor dark reddish-brown, nitidous. Coxæ grey. Trochanters testaceous. Femora testaceous, with a broad dark brown or black ring at apex. Tibiæ and tarsi dark brown or black, the former testaceous at the base. Wings very similar to those of *H. cinerascens*, only darker, and having some yellow spots; a yellowish oblique marking from costa to fifth longitudinal vein at basal third of second basal cell, the included portion of the fifth vein bright yellow; a yellowish spot immediately before stigma; not quite so much whitish in second basal cell as in *H. cinerascens*, only a small spot in fourth posterior cell, and scarcely any traces on posterior half of wing. Venation as in *H. cinerascens*, except that the discal cell is a little shorter; stigma brown.

Hab.—Rodd Island, Port Jackson (Skuse). One specimen at end of March.

406. HABROMASTIX REMOTA, Walker. (Pl. v., fig. 12).

Tipula remota, Wlk., List Dipt. Brit. Mus. I. p. 73, 1848.

♂.—Length of antennæ... .. 0·640 inch ... 16·78 millimètres.
 Expanse of wings..... 0·600 × 0·120 ... 15·24 × 3·04
 Size of body..... .. 0·500 × 0·060 ... 12·70 × 1·54

Head brownish-grey, tinged with brown on the front; rostrum brown, pubescent; suctorial labella and palpi dark brown; antennæ brown, the joints of scapus and first two or three flagellar joints more fulvous; antennæ longer than the entire body, the flagellar joints long, filiform, densely adorned with long erect hairs; the terminal joint less than $\frac{1}{4}$ the length of preceding joint. Thorax brown, levigate, the lateral borders and three narrow stripes before the suture, grey; the stripes extending from anterior border to, and slightly converging towards, the suture; behind the suture, above the origin of the wings and before the scutellum, more or less hoary greyish; pleuræ hoary greyish; metanotum grey, brown

posteriorly. Halteres with a blackish club. Abdomen brown, the terminal segments black, each segment bordered posteriorly and more or less laterally with yellowish-grey; forceps deep brown. Legs very long and slender, brownish-fulvous, the tips of femora and tibiae brown. Wings with a pale brownish tint, marked with about twelve irregular whitish spots; the latter usually crossing the veins, the included portions being yellowish; the spots on the apical portion of the wing smaller than the others; veins and stigma brown, distinct. First longitudinal vein joining anterior branch of second longitudinal close to the base; inner ends of second submarginal, first posterior and discal cell in one line; second posterior cell with a long petiole; discal cell small, not quite the length of petiole of second posterior cell; fourth posterior cell longer and narrower than usual; fifth posterior cell in punctiform contact with the discal cell.

Hab.—Lawson, Blue Mountains, N.S.W. (Masters). One specimen in January.

Obs.—The above-described answers to Walker's description of *T. remota*, from "New Holland."

2. *Antennæ 13-jointed* (? in both sexes).

Genus 9. PHYMATOPSIS, gen.nov.

First longitudinal vein joining anterior branch of second longitudinal vein near the base; rhomboid cell small; præfurea short, rather longer than the great cross-vein; second posterior cell with a short petiole or sessile. Front moderately broad, with a prominent tubercle immediately above the base of antennæ. Rostrum considerably longer than the head, distinctly pubescent; nasus wanting. *Antennæ 13-jointed* in ♂, short, the terminal six or seven joints distinctly smaller. ♂ genitalia of simple structure.

Rostrum considerably longer than the head, densely covered with short hairs; nasus wanting; palpi with the first and third joints shortest, of about equal length, the terminal joint long,

flagelliform. Antennæ a little longer than the rostrum; first joint of scapus obconical, about twice the length of the second, second rather long, cyathiform; flagellar joints progressively diminishing in length to the last, narrower at the base, beset with minute hairs (Pl. VI., fig. 35). Front moderately broad, somewhat flattened, with a prominent tubercle immediately above the basal joints of the antennæ. ♂ forceps narrower than the preceding segment, of simple structure (Pl. VI., fig. 36). Legs long and slender; owing to the great length of the metatarsal joint the tarsi are more than $2\frac{1}{2}$ times the length of the tibia; tibial spurs short; unguis minute. Wings lanceolate; anal angle only slightly developed. First longitudinal vein with the cross-vein close to its tip, joining the anterior branch of the second longitudinal near the middle, consequently the rhomboid cell very small; anterior branch of second longitudinal sinuated; præfurca arcuated at base, short, almost in line with the remainder of the vein; inner ends of second submarginal and first posterior cells obliquely in line; discal cell oblong, pentangular, its inner end forming an obtuse angle with the inner ends of the second submarginal and first posterior cells; second posterior cell in punctiform contact with discal, or with a short petiole; fifth posterior cell in punctiform contact with discal near its inner end; seventh longitudinal almost parallel with the margin.

This genus is closely related to *Habromastix*, but may be readily distinguished from it by the character of the antennæ, tubercle on the front, long rostrum, and venation.

407. PHYMATOPSIS NIGRIROSTRIS, sp.n. (Pl. v., fig. 13.)

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·085 inch | ... | 2·14 millimètres. |
| Expand of wings..... | 0·600 × 0·150 | ... | 15·24 × 3·81 |
| Size of body..... | 0·560 × 0·080 | ... | 14·24 × 2·02 |

Head slaty-grey, or more brownish; frontal tubercle, face, and joints of scapus fulvous; rostrum, palpi, and suctorial labella black or deep brown; the rostrum shining, densely clothed with

black hairs; flagellar joints of antennæ brown. Thorax slaty-grey, opaque, clothed with short pale hairs, with four brown stripes, the intermediate two cuneiformly narrowed posteriorly, extending from anterior margin almost to the suture, the lateral ones short, reaching suture; a pair of brown spots on each side behind the suture, the anterior spot small, roundish, the hinder one large, of indefinite shape; pleuræ and metathorax greyish-ochreous. Halteres brown, fulvous at extreme base of stem. Abdomen black, levigate, clothed with short pale hairs; the first segment dull greyish-brown or greyish-ochreous; and the anterior half of the second segment nitidous, transparent, fulvous-brown (with a dark brown median dorsal stripe in one specimen); holding-forceps brown. Legs very long, black; the coxæ and basal portion of femora ochreous or fulvous. Wings semi-transparent, with a greyish tint, brownish in the costal cell; stigma ochreous-yellow. The venation as described in the generic diagnosis.

Hab.—Sydney (Masters and Skuse). Two specimens. April.

II. DISTINCT NASUS TO ROSTRUM; ♂ FORCEPS USUALLY OF COMPLICATED STRUCTURE.

B. Antennæ simple, sometimes serrate.

1. *Antennæ short in both sexes, with a variable number of joints; and a certain number of linear terminal joints. Rostrum stout and short.*

a. Genitalia not protruding in either sex.

Genus 10. SEMNOTES, Westw.

Semnotes, Westw., Trans. Ent. Soc. Lond. 1876, p. 501; O.-Sacken, Studies, I., p. 181, 1886.

First longitudinal vein joining the anterior branch of the second longitudinal in such a manner that the ultimate section of the branch appears as a *straight continuation of the first vein*; præfurca as long as or a little longer than great cross-vein; second

posterior cell petiolate. Front broad, slightly gibbose anteriorly. Rostrum very short, arched in front, with a short obtuse nasus. *Antennæ* 7-jointed (? in both sexes), shorter than the head. *Palpi* with the last joint short. Genitalia in both sexes inconspicuous.

Rostrum not half the length of the head; nasus obtuse, hairy; palpi short, the last joint about the length of the third or shorter (Pl. VI., fig. 38). *Antennæ* somewhat shorter than the head; 7-jointed (? in ♂); first joint of scapus stout, cylindrical, more than $\frac{1}{3}$ length of entire antennæ, second somewhat narrower, elongate, cyathiform; first flagellar joint as long as, but somewhat narrower than, second joint of scapus (rather longer and narrower in *S. imperatoria*), obovate; remaining joints linear (Pl. VI., fig. 37). Front broad, a little gibbose anteriorly above the antennæ. Thorax large and gibbose, considerably larger in ♀ than in the ♂; suture distinct; abdomen less than twice the length of the thorax, robust, clavate, the second segment truncate-conical; third to fifth segments wide, short; the rest short, diminishing in width; genitalia in both sexes inconspicuous, difficult to study in dried specimens. Legs long and slender; in the ♂ the tarsi more than twice the length of the tibiæ, in ♀ less than twice their length; tibiæ armed with a pair of short spurs; unguis strong, hooked; empodia distinct. Wings large, divaricate, shorter and narrower in the ♂ than in the ♀; anal angle most distinct in the ♀, not so prominent in the ♂. Auxiliary vein reaching the first longitudinal in *S. ducalis* before, in *S. imperatoria* opposite, inner end of first posterior cell, connected at the tip to costa by a cross-vein; the ultimate section of the anterior branch of the second longitudinal appearing as a continuation of the first longitudinal; second posterior cell petiolate; discal cell oblong, pentangular, in punctiform contact with fifth posterior cell, or connected to it by a very short vein, about the middle of its length.

408. SEMNOTES DUCALIS, Westwood. (Pl. v., fig. 14.)

S. ducalis, Westw., Trans. Ent. Soc. Lond. p. 502, pl. III. fig. 2a, 1876.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·060 inch | ... | 1·54 millimètres. |
| Expanse of wings..... | 1·000 × 0·250 | ... | 25·40 × 6·34 |
| Size of body..... | 0·850 × 0·290 | ... | 21·58 × 7·35 |

Fulvous, opaque, variegated with black. Thorax with three short, broad, confluent black stripes, the anterior one not reaching the margin of the pronotum, two-thirds of its length in advance of the lateral ones; a large oblong black spot above the origin of the wings, immediately behind the suture; pleuræ black from behind fore coxæ, with a minute fulvous spot in the centre; pectus black; a large black marking in front of the halteres. Halteres fulvous, with the club and base black. Abdomen: first segment with a triangular black marking (based on the posterior margin), and a lateral black spot; second with a median stripe, widening posteriorly, and a roundish lateral spot posteriorly; third and fourth segments black, with two transverse fulvous markings posteriorly (indistinct on the fourth segment); remaining segments with a median black marking, the fifth and sixth with also lateral markings; all the segments with black markings beneath; the third to seventh black with small fulvous spots; genitalia fulvous. Fore coxæ fulvous; intermediate and hind pairs black. Femora black, fulvous at the base. Tibiæ with the anterior half and extreme base black; the posterior pair distinctly arcuated. Tarsi wholly black. Wings black at the base; posterior half and tip cinereo-fuscous, the anterior portion fulvous with two black spots; a large squarish spot (immediately before humeral cross-vein) between fifth longitudinal vein and costa, partially interrupted anteriorly in the costal cell; the second a narrow longitudinal stripe above the præfurca in the inner marginal cell; veins of same colour as that of the portion of the wing they traverse, except that the costa is black from the humeral cross-vein, and the cross-vein between the tip of the auxiliary vein and costa is slightly clouded with blackish. Second posterior cell with a petiole equal to half or more of its length; discal cell oblong, pentangular, a little shorter than fourth posterior cell, connected with fifth posterior cell by a very short vein a little before the middle of its length.

(in reality the great cross-vein joining fourth longitudinal slightly beyond inner end of fourth posterior cell).

Hab.—Northern Australia (Damell); Fairy Bower, Manly, near Sydney (Mr. H. Prince), one specimen in November.

Obs. 1.—I have seen only two examples of this magnificent insect, both of which were captured at Manly.

Obs. 2.—In the specimen before me the anterior tibiæ measure 7 lines, the tarsi 12 lines; while the posterior tibiæ are 9 lines and the tarsi 16 lines.

409. SEMNOTES IMPERATORIA, Westwood.

S. imperatoria, Westw., Trans. Ent. Soc. Lond. p. 502, pl. III. fig. 1, 1876.

| | | | | | |
|---------------------------|---------------|------|--------------|------|--------------|
| ♂.—Length of antennæ..... | — | inch | ... | — | millimètres. |
| Expanses of wings..... .. | 1.090 × 0.220 | ... | 27.67 × 5.58 | | |
| Size of body..... | 0.760 × 0.240 | ... | 19.32 × 6.09 | | |
| ♀.—Length of antennæ..... | 0.060 | inch | ... | 1.54 | millimètres. |
| Expanses of wings... .. | 1.220 × 0.320 | ... | 30.98 × 8.12 | | |
| Size of body..... | 0.910 × 0.300 | ... | 23.11 × 7.62 | | |

Stramineous-yellow, opaque, variegated with black. Antennæ black or brown (in one ♀ specimen the first joint of the scapus yellowish). Thorax smaller in ♂ than in ♀; the anterior portion black; a transverse (usually large) black spot above the origin of the wings, immediately behind the suture; suture black; pleuræ (from behind fore coxæ) black, with a large triangular yellow spot beneath origin of wings; pectus black; each side of scutellum and the metathorax (except metanotum) black. Halteres black. Abdomen shorter and narrower in ♂ than in ♀; first five segments traversed by a broad black median stripe, the second to fourth with a narrow margin of black posteriorly which expands into a tolerably large spot laterally; venter very similarly marked to the upper side, except that the median stripe is suddenly narrowed on the posterior half of the second segment. Fore coxæ

yellow; intermediate and hind pairs black. Femora black, yellow at the base. Tibiæ considerably longer in ♂ than in ♀, with the anterior half and the base black. Wings shorter and considerably narrower in ♂ than in ♀, black at the base; cinereo-fuscous (a paler brownish tint in old specimens), paler behind the humeral cross-vein; veins black or deep brown. Second posterior cell with a short petiole; discal cell oblong, pentangular, a little shorter than fourth posterior cell, in punctiform contact with fifth posterior cell.

Hab.—Melbourne, Victoria (Westwood); Sydney and Lane Cove, two ♀ specimens (Masters); Lawson, Blue Mountains, N.S.W., one ♂ specimen (Mr. H. Prince).

Obs. 1.—At first sight I took the above-mentioned ♂ specimen to belong to *Leptotarsus* on account of the extraordinary length of the tarsi; the anterior tibiæ are 8 lines and the tarsi 20 lines; the posterior tibiæ 9 lines and the tarsi 22 lines. In the ♀ the anterior tibiæ measure 8 lines and the tarsi 14 lines; the posterior tibiæ 9 lines and the tarsi 15 lines.

Obs. 2.—This species is easily distinguished from the last by its plain wings and different body-markings.

GENUS 11. LEPTOTARSUS, Guérin.

Leptotarsus, Guérin, Voy. de la Coquille, Dipt. p. 286., 1838; O.-Sacken, Studies I, p. 181, 1886.

First longitudinal vein joining the anterior branch of the second longitudinal near the base, *its tip, with the ultimate section of the branch, forming an arcuation*; præfurca as long or a little longer than the great cross-vein; second posterior cell petiolate. Front broad, slightly gibbose anteriorly. Rostrum short, about the length of the head, arched in front, with a distinct, obtuse nasus. *Antennæ 10-jointed, as long as or but little longer than the head. Palpi with the last joint long, flagelliform.* Genitalia in both sexes inconspicuous.

Rostrum short, arched in front, shorter than the head, much shorter in *L. trivittata*; nasus distinct, obtuse, pubescent; palpi with the first three joints sub-equal, the second more or less incrassated, the fourth joint long and flagelliform. Antennæ short, the length of the head or a little longer, the joints with minute hairs; 10-jointed in both sexes; first joint of the scapus cylindrical, about three times the length of the second; flagellar joints progressively diminishing in width from sub-globose to linear. Front broad, slightly gibbose anteriorly above the antennæ. Collare slightly prolonged into a neck. Thorax large and gibbose; suture distinct; abdomen less than twice the length of the thorax, narrow and compressed from the sides in the ♂; robust and clavate in the ♀, with the second segment truncate-conical, the third to fifth narrow, increasing in width, the rest narrow, diminishing; genitalia in both sexes inconspicuous. Legs very long and very slender, especially the hind pair; the tarsi more than twice the length of the tibiæ; tibia armed with a pair of short spurs; ungues small, hooked, smooth; empodia small, but distinct. Wings divaricate; shorter and narrower in ♂ than in the ♀; anal angle prominent in ♀, not so distinct in the ♂. Auxiliary vein reaching costa about opposite inner end of first submarginal cell; first longitudinal vein joining anterior branch of second longitudinal near its origin, forming an arcuation with the ultimate section of the branch; second posterior cell petiolate; discal cell longer than wide, pentangular, in punctiform contact with the fifth posterior cell at about the middle of its length.

410. LEPTOTARSUS MACQUARTI, Guérin. (Pl. v., fig. 15.)

L. Macquarti, Guérin, Voy. de la Coquille, Dipt. p. 286, pl. xx, fig. 1, 1838; *Tipula tricincta*, Walker, List Dipt. Brit. Mus. I, p. 73, 1848.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·065 inch | ... | 1·66 millimètres. |
| Expand of wings..... | 0·940 × 0·180 | ... | 23·86 × 4·56 |
| Size of body..... | 0·680 × 0·150 | ... | 17·26 × 3·81 |

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·080 inch | ... | 2·02 millimètres. |
| Expans of wings..... | 1·150 × 0·250 | ... | 29·21 × 6·34 |
| Size of body..... | 0·750 × 0·180 | ... | 19·04 × 4·56 |

Stramineous-yellow. Flagellar joints of antennæ and last three joints of palpi usually brown, or growing obscure; antennæ as long as the head; first flagellar joint sub-globose, second ovate, third more elongate, the rest longer, linear; terminal joint usually short, sometimes as long as the preceding joint (Pl. VI., fig. 39, ♀ antennæ). Thorax shining black in front of suture (which colour extends back on each side to the base of the wings), with a yellow spot below the humeri; the rest yellow. Halteres with brown club. Abdomen with a black band on the hind borders of the first four segments; the band in the second segment usually carried slightly forward in the middle; the third and fourth usually with a complete median stripe connecting the bands; also sides of the two last-named segments black; the yellow portions of the segments, except anterior two-thirds of second, with a whitish bloom (especially in fresh specimens); fifth and following segments entirely yellow; venter with the hind border of second, and the third and fourth segments, usually shining black. Legs black, the coxæ and extreme base of femora yellow. Tarsi in fore and intermediate legs twice the length of tibiæ, in hind legs rather more than twice the length. Wings with a pale brownish tint, brown in the costal cell; stigma visible, but pale; veins dark brown, nearly black at base of wings.

Hab.—Sydney (Masters and Skuse). November. Nine specimens.

Obs. 1.—Walker's species, judging from the description, cannot be separated from *L. Macquarti*, Guérin.

Obs. 2.—In one specimen the discal cell is opened into the third posterior cell.

412. LEPTOTARSUS CLAVATA, Macquart.

Tipula clavata, Macq., Dipt. Exot. Suppl. IV. p. 14, pl. 1, fig. 4, 1850.

♂.—*Capite rufo. Thorace nigro-nitido. Abdomine clavato, rufo, fasciis nigris. Pedibus nigris, femoribus basi rufis. Alis fuscans basi flavis maculaque fusca.*

Head fulvous-orange. Last joint of the palpi black. Antennæ rather short, naked, the first two joints fulvous; the rest black; the last seven small. Prothorax fulvous, narrow; mesothorax nitidous black; sides and lateral spot with fulvous bloom; another fulvous lateral spot near the posterior border; scutellum and metathorax fulvous, the last with two brown spots. Abdomen: the first two segments narrow, shining fulvous; second segment elongate, the posterior margin black; the five others forming an elongated mass; third and fourth black, with the anterior margin fulvous; fifth, sixth, and seventh fulvous; venter: the first two segments fulvous; the remainder shining black. Genitalia fulvous. Legs blackish-brown; femora with their anterior third fulvous, the anterior (pair) a little arcuated. Wings reddish-brown, with the exterior margin and stigmatic spot brown; base yellow as far as the base of the median cells. Length 7 × 1.

Hab.—Tasmania.

Obs.—I agree with Osten-Sacken (Studies, I. p. 182) that the above-described belongs to *Leptotarsus*. Macquart's figure (i.e., fig. 4a) is possibly incorrect. However the insect is quite unknown to me at present.

411. LEPTOTARSUS NIGRITHORAX, Macquart.

Tipula nigrithorax, Macq., Dipt. Exot. Suppl. IV. p. 15, pl. 1, fig. 5, 1850.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·065 inch | ... | 1·66 millimètres. |
| Expanse of wings..... | 0·680 × 0·150 | ... | 17·26 × 3·81 |
| Size of body..... | 0·470 × 0·120 | ... | 11·93 × 3·04 |
| ♀.—Length of antennæ..... | 0·060 inch | ... | 1·54 millimètres. |
| Expanse of wings..... | 0·680 × 0·150 | ... | 17·26 × 3·81 |
| Size of body..... | 0·420 × 0·120 | ... | 10·66 × 3·04 |

Head, rostrum, joints of scapus, and first joint of palpi fulvous; the last three joints of palpi and flagellar joints black; antennæ as long as the head; first flagellar joint sub-globose, third to fourth ovate, progressively narrowing, the remaining four about equal in length to the next preceding one, sub-cylindrical, narrow. Thorax fulvous; shining black in front of suture (which colour extends back on each side to the base of the wings), with a yellow spot below the humeri; pectus shining black, covered with a hoary bloom at the sides; metanotum with a black band or two black spots posteriorly. Halteres with brown club. Abdomen fulvous; first segment margined posteriorly with black, the band produced anteriorly in the middle into a point, so as to make it triangular; second segment shining, margined posteriorly with black, produced anteriorly in the middle into a dorsal stripe for not quite half the length of the segment; third and fourth segments similarly margined with black, and with a complete median black stripe; the third and following segments (also just above black band of second segment) covered with a greyish bloom; venter usually with the posterior margin of the second, and the third and fourth segments, shining black. Legs brownish-black, the coxæ and basal portion of femora, or sometimes only the former, fulvous. Tarsi in all the legs more than twice the length of the tibiæ, in the hind legs twice and a half their length. Wings with a pale brownish tint, brown in the costal cell; stigma visible, but rather pale; veins dark brown, nearly black at the base of wings.

Hab.—Tasmania (Macquart); Mittagong, N.S.W. (Masters). Four specimens.

Obs.—Easily distinguished from *L. Macquarti* by the black pectus and black markings on posterior borders of metanotum, &c.

412. LEPTOTARSUS SCUTELLARIS, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·075 inch | ... | 1·89 millimètres. |
| Expanse of wings..... | 0·800 × 0·150 | ... | 20·32 × 3·81 |
| Size of body..... | 0·540 × 0·120 | ... | 13·70 × 3·04 |

Head, including rostrum, suctorial labella and joints of scapus, reddish-fulvous; palpi black; flagellar joints of antennæ black; antennæ somewhat longer than the head; first flagellar joint short-obconical, second narrower, shorter, ovate, third and fourth progressively narrower, elongate-pyriform, the remaining four joints narrow, subcylindrical (Pl. VI., fig. 40). Collare reddish-fulvous. Thorax shining black; a yellowish pruinose spot below humeri, and a larger fulvous marking beneath on the pleuræ, between collare and origin of the wings; pleuræ and metathorax black, with a greyish bloom; scutellum reddish-fulvous. Halteres brownish with dusky club. Abdomen: first two segments shining fulvous, the second margined posteriorly with black (which is produced anteriorly in the middle for about half the length of the segment); third and fourth segments entirely shining black, with a greyish bloom; remaining segments and genitalia shining reddish-fulvous; venter as above. Legs entirely black (in one specimen the base of femora slightly fulvous). Tarsi in all legs more than twice and a-half the length of tibiæ, nearly three times their length in the hind pair. Wings with a pale brown tint, the costal cell and stigma darker; veins brown, the costa and first longitudinal vein dark brown, nearly black.

Hab.—Blue Mountains, N.S.W. (Masters). Two specimens.

Obs.—Readily distinguished from all other species by its almost entirely black thorax, black coxæ, and in having the first abdominal segment entirely fulvous, and the third and fourth segments black.

413. LEPTOTARSUS TRIVITTATA, sp.n.

| | | | |
|----------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | — inch | ... | — millimètres. |
| Expanse of wings..... | 0·650 × 0·150 | ... | 16·51 × 3·81 |
| Size of body | 0·500 × 0·110 | ... | 12·70 × 2·79 |
| ♀.—Length of antennæ | 0·065 inch | ... | 1·66 millimètres. |
| Expanse of wings..... | 0·630 × 0·130 | ... | 16·00 × 3·30 |
| Size of body..... | 0·450 × 0·100 | ... | 11·43 × 2·54 |

Head fulvous, pruinose with greyish, tinged with blackish between the eyes; anterior portion of front, the rostrum and joints of scapus fulvous (more brownish in the ♀ specimen before me); rostrum rather more than half the length of the head; antennæ a little longer than the head; flagellar joints as in *L. scutellaris*. Collare brown, somewhat tinged with reddish-fulvous. Thorax fulvous (somewhat obscured by a greyish bloom), with three confluent deep brown or black, somewhat shining, stripes; intermediate stripe broad, extending from anterior margin $\frac{2}{3}$ the distance to suture; lateral ones narrower, extending from below humeri to origin of the wings; pectus brown covered with a greyish bloom; metanotum with a brown band posteriorly. Halteres fulvous with brown club. Abdomen: first segment fulvous, with a brown spot posteriorly; second shining fulvous, the posterior half black, with a large greyish hoary spot on each side; the remaining segments black, greyish hoary laterally; genitalia in both sexes slightly tinged with fulvous; venter similarly coloured to upper side. Legs dark brown or black, the coxæ somewhat tinged with fulvous. The tarsi (in ♀) in the fore and intermediate legs less than twice the length of tibiæ, twice their length in the hind pair. Wings blackish-brown at the origin, with a very pale brownish tint, exhibiting whitish reflections on the anterior half, the costal cell and stigma distinctly brown; veins dark brown, the costa and first longitudinal almost black.

Hab.—King George's Sound, West Australia (Masters). Two specimens.

Obs.—Differs from the rest in having three stripes on the thorax, and the third to last abdominal segments brown or black, &c. In the only ♂ specimen before me the antennæ and legs are lost.

b. Genitalia protruding in both sexes; ♂ forceps of rather simple structure.

Genus 12. ACACANTHA, gen.nov.

First longitudinal vein joining anterior branch of second longitudinal near the base; præfurca distinctly longer than great

cross-vein; second posterior cell with a short petiole or sessile. Front tolerably broad, with a slight gibbosity above the base of antennæ. Rostrum shorter than the head, with a distinct hairy nasus. Antennæ 12-jointed in ♂, 14-jointed in ♀; short, with a certain number of terminal linear joints which are beset with bristly hair. Palpi with the last joint long, flagelliform. ♂ forceps of rather simple structure; valves of ♀ ovipositor straight and slender.

Rostrum half the length of the head; nasus prominent, hairy; palpi with the first three joints progressively increasing in length, the fourth as long as or longer than the preceding three taken together. Antennæ longer than the head and rostrum combined, very little longer in *A. monticola*, about the length in *A. inornata*; 12-jointed in ♂, 14-jointed in ♀; first five to seven flagellar joints diminishing in size, the remaining terminal joints linear, adorned with tolerably long stiff hairs; in *A. Sydneyensis* the first seven flagellar joints in ♂, and the first six in the ♀, give the antennæ a serrate appearance beneath; the first five in *A. monticola* less so (Pl. VI., fig. 42). Front tolerably broad, with a slight gibbosity above the antennæ in *A. Sydneyensis* and *A. monticola*, scarcely perceptible in *A. inornata*. Collare slightly prolonged into a neck. Thorax rather elongate; suture distinct. Abdomen slender and elongate; ♂ forceps not incrassate, of rather simple structure (Pl. VI., figs. 41, 41a); ♀ ovipositor with straight, slender valves. Legs long and slender; fore and intermediate tarsi twice the length of the tibiæ, in the hind legs less, on account of the greater length of the tibiæ; tibial spurs small (I cannot detect any on the fore tibiæ); ungues small, curved, dentate, smooth in *A. inornata* (♀); empodia very small, linear. The wings are considerably longer and broader in the ♀ than in the ♂; the anal angle is distinct. Anterior branch of second longitudinal vein oblique, the second longitudinal joining it near the origin; second submarginal cell longer than first posterior, their inner ends obliquely in line and forming almost a right angle with inner end of discal cell; the latter longer than broad, pentangular; second posterior cell long, with a short branch; sessile in *A. inornata*; fifth

posterior cell in punctiform contact with the discal (before the middle of its length); seventh longitudinal vein tolerably long, only slightly arcuated at the tip.

This genus may very likely be more closely related to *Habromastix* and *Phymatopsis* than to the genera with which it is perhaps arbitrarily classed at present.

414. ACRACANTHA SYDNEYENSIS, sp.n. (Pl. v., fig. 16.)

♂.—Length of antennæ..... 0·120 inch ... 3·04 millimètres.
 Expanse of wings..... 0·500 × 0·120 ... 12·70 × 3·04
 Size of body..... 0·500 × 0·065 ... 12·70 × 1·66

♀.—Length of antennæ..... 0·120 inch ... 3·04 millimètres.
 Expanse of wings..... 0·690 × 0·170 ... 17·51 × 4·31
 Size of body..... 0·800 × 0·090 ... 20·32 × 2·27

Head rich reddish-brown; the anterior portion of the front, face, rostrum and both joints of scapus reddish-fulvous; nasus, palpi and flagellar joints black; antennæ about twice the length of head; first joint of scapus rather long, cylindrical, about four times the length of second; in ♂ first seven, in ♀ first six, flagellar joints (viewed from the side) truncate-clavate, flattened above, produced beneath, (giving to the antennæ a distinctly serrate appearance), progressively diminishing in depth; the remaining joints (three in ♂, six in ♀) linear, beset with long bristly hairs. Collare bright pale yellow. Thorax brown, somewhat shining, with more or less distinct traces of paler longitudinal stripes; pleuræ with bright pale yellow stripe continuing from collare to base of halteres; scutellum and metanotum paler than the mesothorax. Halteres brown. Abdomen brown, the first two segments (in the ♂), margins of segments and venter, more or less fulvous-brown; genitalia fulvous or brownish-fulvous. Coxæ fulvous. Femora fulvous, growing brown towards the tip. Tibiæ and tarsi dark brown, the former fulvous at the extreme base. Tarsi in the fore and intermediate legs at least twice the length of tibiæ, in the

hind legs the tibiæ longest and the tarsi less than twice their length. Wings with a delicate brownish tint, slightly darker in the costal cell; stigma pale; veins brown. Anterior branch of second longitudinal vein considerably shorter than petiole of first submarginal cell; second posterior cell with a rather short petiole; discal cell more elongate in ♀ than ♂, pentangular, its anterior border in direct line with petiole of second posterior cell; fifth posterior cell in punctiform contact with the discal.

Hab.—Sydney (Masters and Skuse). Three specimens.

415. *ACRACANTHA MONTICOLA*, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·100 inch | ... | 2·54 millimètres. |
| Expanse of wings..... | 0·600 × 0·150 | ... | 15·24 × 3·81 |
| Size of body..... | 0·600 × 0·070 | ... | 15·24 × 1·77 |

Greatly resembling the preceding, *A. Sydneyensis*, as regards colouring; the differences are as follows:—First joint of scapus distinctly incrassated towards apex; second joint black; first flagellar joint obconical, the next four (viewed from the side) truncate-clavate, flattened above, of equal length, but progressively diminishing in depth; the remaining five terminal joints linear, beset with long bristly hair. Collare almost saffron-yellow. Thorax ochreous-brown, darker on the pronotum, somewhat shining; pleuræ ochreous, consequently the yellow stripe less prominent than in *A. Sydneyensis*. Halteres brown. Abdomen ochreous-brown, more or less infuscated towards the terminal segment; forceps ochreous. Coxæ ochreous. Femora black, growing ochreous towards the base. Genua pale. Tibiæ and tarsi black. Tarsi in fore and intermediate legs twice the length of the tibiæ, in the hind legs less than twice their length. Wings with a pale brownish tint, darker in the costal cell; stigma indistinct; veins dark brown. Anterior branch of second longitudinal vein shorter than the petiole of first sub-marginal cell; second posterior cell with a very short petiole; discal cell rather elongate, pentangular, its anterior border a little arcuated, in punctiform contact with fifth posterior cell.

Hab.—Wentworth Falls, Blue Mountains (Skuse). In damp caves in January. A single specimen.

Obs.—Differs from *A. Sydneyensis* chiefly in the structure of antennæ (having five terminal linear joints in ♂), the less distinct stripe on the pleuræ, and arcuated anterior border of discal cell.

416. ACRACANTHA INORNATA, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·100 inch | ... | 2·54 millimètres. |
| Expanse of wings..... | 0·720 × 0·180 | ... | 18·28 × 4·56 |
| Size of body..... | 0·850 × 0·090 | ... | 21·58 × 2·27 |

Brownish-fulvous or brownish-ochreous. Front with a small deep brown spot on each side next the eyes, also a small one at base of rostrum; palpi and flagellar joints black; first joint of scapus short, twice the length of the second; first flagellar joint almost obconical, the next three more elliptical, progressively diminishing in thickness, fifth cylindrical, slender, the following seven linear, beset with long stiff hairs. Thorax somewhat shining, with faint indications of three brownish lines; suture brownish; scutellum and metanotum paler than the mesothorax. Halteres ochreous, the club slightly infuscated. Abdomen somewhat shining, slightly infuscated with brownish from second segment; ovipositor almost fulvous, the valves straight and slender, longer than in *A. Sydneyensis*. Coxæ and femora ochreous or fulvous, the tip of the latter brown. Genua pale. Tibiæ and tarsi deep brown or black. Tarsi twice the length of the tibiæ (the hind legs wanting in the specimen before me). Wings with a pale brownish tint, the costal cell and stigma more ochreous; veins brown. Anterior branch of the second longitudinal vein equal in length to petiole of first submarginal cell; second posterior cell sessile, in punctiform contact with the discal; the latter rather elongate, pentangular; fifth posterior cell in punctiform contact with the discal.

Hab.—King George's Sound, Western Australia (Masters). A single specimen in Coll. Australian Museum.

Obs.—Distinguished by the absence of yellow stripe on the pleuræ, the uniformly coloured collare, structure of antennæ, sessile second posterior cell, &c.

2. *Antennæ usually short, sometimes very long, normally 13-jointed, sometimes more, in both sexes.*

a. Genitalia protruding in both sexes.

* *Antennæ serrate.*

Genus 13. ISCHNOTOMA, gen.nov.

First longitudinal vein incurved into the anterior branch of second longitudinal near the base; præfurca short, but longer than great cross-vein; ultimate section of second longitudinal vein arcuate, as in *Holorusia*; second posterior cell petiolate. Eyes rather large. Front moderately broad, with a distinct tubercle anteriorly, above the base of antennæ. Rostrum more or less the length of the head, with a distinct, pointed nasus. Antennæ short, serrate, the length of head and rostrum taken together; 13-jointed; first joint of scapus and first flagellar joint long. Genitalia of ♂ short, not incrassate, of rather simple structure; ♀ ovipositor with rather short valves.

Rostrum very minutely pubescent, as long as the head in *I. serricornis* and *I. par*, shorter in *I. rubriventris*; the nasus very prominent. Palpi long, the first three joints progressively increasing in length, the fourth flagelliform. Collare slightly prolonged into a short neck. Antennæ with the first flagellar joint long, cylindrical; the following eight or nine progressively diminishing in length and more or less distinctly produced beneath, very distinctly in *I. serricornis* and *I. par* (Pl. vi., fig. 46); last two terminal joints small; the joints only microscopically pubescent. Eyes ovate, almost contiguous beneath (not so close in *I. rubriventris*). Front with a fulvous tubercle anteriorly. Thorax elongate-ovate, convex; transverse suture distinct; scutellum small; metanotum convex. Abdomen long, slender, cylindrical, glabrous, or with only a very minute pubescence; ♂ forceps short, not wider than the preceding

abdominal segment, of rather simple structure (Pl. vi., figs. 43-45); ♀ ovipositor with short slender valves, the upper ones longer than the lower and blunt at the tip. Legs long and slender; fore and intermediate tibiæ with a single small spur, hind tibiæ provided with a pair; tarsi very slender, much longer than the tibiæ; ungues distinct, toothed in *I. par* (♂); empodia small, narrow. Wings lanceolate, with a distinct anal angle. Auxiliary vein joining first longitudinal vein about opposite middle of præfurca; ultimate section of second longitudinal vein more strongly arcuated in *I. serricornis* than in the other species; petiole of second posterior cell about half the length of the cell; discal cell pentangular, in punctiform contact with fifth posterior cell at about $\frac{1}{3}$ of its length, more elongate in *I. par* and *I. rubriventris* than in *I. serricornis*.

The three species here included form a compact group, and may be at once recognized by the structure of the flagellar joints of the antennæ, arcuated ultimate section of the second longitudinal vein, yellow tubercle on the front, and structure of the ♂ genitalia.

417. ISCHNOTOMA SERRICORNIS, Macquart. (Pl. v., fig. 17.)

Tipula serricornis (♂), Macq., Dipt. Exot. Suppl. I. p. 13, pl. 1, fig. 7, 1846; *T. eburnea* (♀), Walker, List Dipt. Brit. Mus. I. p. 69, 1848; *T. albovariegata* (♂), Macq., Dipt. Exot. Suppl. V. p. 16, pl. 1, fig. 3, 1855.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·120 inch | ... | 3·04 millimètres. |
| Expanse of wings..... | 0·850 × 0·180 | ... | 21·58 × 4·56 |
| Size of body..... | 0·650 × 0·120 | ... | 16·51 × 3·04 |
| ♀.—Length of antennæ..... | 0·120 inch | ... | 3·04 millimètres. |
| Expanse of wings..... | 0·950 × 0·220 | ... | 24·12 × 5·58 |
| Size of body..... | 0·880 × 0·135 | ... | 22·34 × 3·42 |

Head brown or greyish-brown, the frontal tubercle fulvous-yellow; rostrum brown; suctorial labella, palpi, and antennæ black or deep brown (in one ♂ specimen the flagellar joints fulvous-brown); first joint of the scapus about $\frac{1}{3}$ longer, and thicker than the first flagellar joint; second more than half the

length of the first, subcylindrical, slightly produced beneath; third to ninth progressively decreasing in size, obtrigonal, with a very short pedicel anteriorly; penultimate joint slender, the terminal one small. Collare usually more or less mottled with whitish. Thorax brown; a broad irregular whitish or yellowish band laterally, from before humeri to suture; a dark brown median line usually distinctly traversing the thorax, with a small yellowish spot on each side at the pronotum and a rather large one, followed by a short indistinct stripe on each side, before the suture; behind the suture a broad white band extends to and includes the scutellum; three white or yellowish spots on each side, two against the suture and the third above the origin of the wings; pleuræ with a large white spot beneath the wings and a small one between the origin of the wings and the fore coxæ; metanotum with two white spots. Halteres fulvous, the club black. Abdomen brownish-fulvous; first segment white at the sides; venter with the segments white at the sides. Coxæ white; trochanters dark brown. Femora and tibiæ brownish-fulvous, dark brown at the tips. Tarsi brown. Wings whitish, much marbled with brown and greyish; a roundish clear spot in anal angle, a larger spot at tip of seventh longitudinal vein, another just before tip of sixth longitudinal vein, others at tip of second longitudinal vein, centre of discal cell, basal half of first and whole of second posterior cell; several more or less conspicuous ones; veins brown; stigma inconspicuous.

Hab.—Tasmania; South Australia; and Sydney, N.S.W. (Masters). Eight specimens for comparison.

Obs.—This insect has been characterised under three different specific names from specimens obtained in Tasmania, and Adelaide, South Australia.

418. *ISCHNOTOMA PAR*, Walker. (Pl. v., fig. 18.)

Ptilogyna par, Wlk., Ins. Saund. Dipt. p. 446, 1856.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·120 inch | ... | 3·04 millimètres. |
| Expanse of wings..... | 0·750 × 0·150 | ... | 19·05 × 3·81 |
| Size of body..... | 0·680 × 0·100 | ∴ | 17·26 × 2·54 |

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♀.—Length of antennæ..... | 0·120 inch | ... | 3·04 millimètres. |
| Expanse of wings..... | 0·880 × 0·200 | ... | 22·34 × 5·08 |
| Size of body..... | 0·850 × 0·110 | ... | 21·58 × 2·79 |

Head grey, with a longitudinal brown stripe on the front; a prominent fulvous tubercle anteriorly (above the antennæ); face and rostrum, and usually (though often obscurely) the second joint of the scapus and first flagellar joint fulvous; suctorial labella, palpi and the remaining joints of antennæ brown or black; first joint of scapus about $\frac{1}{3}$ longer, and thicker, than first flagellar joint; second to tenth flagellar joints (viewed from the side) serrate beneath (most strongly in ♂), each really produced from the base (less strongly in the ♀) into an almost disciform process which is thickest at its attachment (in the ♀ the second and third joints only nodose beneath); each joint with a very short pedicel anteriorly; terminal joint slender. Thorax with four slate-coloured, black-bordered stripes, the intermediate pair contiguous; the lateral ones short; the intervening spaces, humeri and lateral borders yellowish; from suture to metanotum whitish, with a median black line, the lateral borders black; and two contiguous slate-colored, black-bordered spots on each side above the origin of the wings; pleuræ more or less pruinose with white; pectus brown. Halteres testaceous, with brown or blackish club. Abdomen fulvous; first segment brownish to black, more or less hoary; the following segments bordered posteriorly with black, and laterally with white; genitalia fulvous. Coxæ hoary; trochanters brown or black. Remaining joints black (in fresh specimens) or brown, fulvous towards base of femora. Wings greyish with whitish streaks (mostly on the apical half), the costal, marginal and submarginal cells more or less clouded with brownish, with a whitish mark at each end of stigma; veins black, the auxiliary vein and origin of wings testaceous or fulvous; the great cross-vein and fifth and seventh longitudinal veins clouded with fuscous.

Hab.—Sydney (Masters), two specimens; near Armidale, N.S.W. (Mr. J. F. Schofield); Moonbar and Jindabyne, N.S.W.,

3-3,500 ft., (Helms), *several specimens in Coll. Australian Museum.*
March.

Obs.—With the assistance of Baron Osten-Sacken's note (Studies I, p. 176) on this species I cannot help concluding that the above-described is Walker's *Ptilogyna par.*

419. ISCHNOTOMA RUBRIVENTRIS, Macquart. (Pl. v., fig. 19.)

Tipula rubriventris, Macq., Dipt. Exot. Suppl. I., p. 14, pl. 1, fig. 9, 1846.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·100 inch | ... | 2·54 millimètres. |
| Expanse of wings..... | 0·720 × 0·150 | ... | 18·28 × 3·81 |
| Size of body..... | 0·600 × 0·080 | ... | 15·24 × 2·02 |
| ♀.—Length of antennæ..... | 0·100 inch | ... | 2·54 millimètres. |
| Expanse of wings..... | 0·720 × 0·170 | ... | 18·28 × 4·31 |
| Size of body..... | 0·640 × 0·090 | ... | 16·25 × 2·27 |

Head slate-grey, with a dark median stripe on the front ; frontal tubercle bright fulvous ; rostrum black, fulvous at the sides ; suctorial labella, palpi and antennæ black ; first joint of scapus scarcely $\frac{1}{3}$ longer, but thicker, than first flagellar joint ; second to ninth flagellar joints rounded beneath, progressively diminishing in length ; terminal two joints small. Collare dull fulvous with a brown spot. Thorax hoary grey, almost completely covered by three confluent black stripes ; the intermediate stripe cuneiformly narrowed to the suture, its margins and a median line of deeper black, also two short slate-grey lateral stripes posteriorly ; lateral stripes short, connected with the intermediate one at about the middle of its length ; the humeral pits, transverse suture, a large spot above origin of wings (behind suture), and the sides and posterior borders of sentellum and metanotum, black ; also a more or less distinct black median line from suture, across scutellum and metanotum. Halteres fulvous, the club brown or black. Abdomen fulvous, levigate, with a black band on the posterior margin of second to seventh segment ; yellowish-grey laterally ; genitalia

brownish-fulvous. Coxæ hoary grey; the trochanters black. Remaining joints black, except the base of femora fulvous. Wings with a very pale brownish tint, exhibiting whitish reflections when viewed at a certain obliquity; veins dark brown, fulvous at origin of wing, slightly infuscated; stigma brownish.

Hab.—Tasmania (Macquart); Berrima and Piper's Flats, near Sydney (Masters); London Bridge, near Tenterfield, New England, N.S.W. (Skuse), four males and one female; Moonbar, Monaro, and Jindabyne, N.S.W., 3-3500 feet (Helms); *specimens in Coll. Australian Museum.*

Obs.—Macquart's figure of the antennæ is fairly good, but it does not show the last two small joints.

** *Antennæ simple.*

Genus 14. *HOLORUSIA**, Loew.

Holorusia, Loew, Berl. Entom. Zeits. VII, p. 277, 1863; O.-Sacken, Studies I., p. 183, 1886.

The ultimate section of the second vein very arcuate, so that, in the middle of its course it closely approaches the third, again rising towards the costa. The cross-vein connecting the first with the second vein is obsolete, so that the inner marginal cell coalesces with the outer one; joints of the antennæ short, provided with only very minute bristles; the rest as in *Tipula*.

The above is a translation of the definition of this genus as drawn up by Loew. The species now described (from ♂ examples) exhibits the following structural characters. Rostrum as long as the head, microscopically pubescent; nasus distinct. Palpi with the second joint longer than the first or third, slightly thickened towards the apex; fourth joint long, flagelliform. Antennæ

* Dr. Bergroth (Entom. Tidskr., 1888, p. 140) is of opinion that *Holorusia* cannot be maintained as a genus distinct from *Tipula*. On the other hand, Baron Osten-Sacken (Studies I., p. 183) points out that "the true extent and better definition of the genera *Stygeropsis*, *Longurio*, and *Holorusia* will be obtained only through a general revision of the now very numerous species of *Tipula*, European and exotic."

about the length of the head and rostrum taken together; first joint of the scapus obconical, the second narrower, cyathiform; flagellar joints progressively diminishing in length, beset with short hairs, the first joint cylindrical, the second to ninth more convex beneath; penultimate joint narrower; terminal joint minute. Eyes rather approximate beneath. Front flattened, with a slight gibbosity anteriorly (above the base of the antennæ). Collare slightly prolonged into a neck. Thorax elongate-ovate; metanotum abruptly angled posteriorly. Abdomen slender, cylindrical, clothed with a microscopic pubescence; ♂ genitalia not incrassate, the lamella terminalis supera deeply emarginate. Legs very long and slender: fore and intermediate tibiæ with a single short spur, hind pair with two; tarsi very slender, more than twice the length of tibiæ; last joint of tarsi nodose at base; ungues tolerably strong, arcuated, bidentate beneath (Pl. vi., fig. 47); empodia minute. Wings lanceolate, longer than entire body; anal angle distinct, but rounded. Auxiliary vein reaching first longitudinal opposite inner end of second submarginal cell; first longitudinal vein joining second a little before origin of anterior branch;* ultimate section of second longitudinal considerably arcuated; inner end of second submarginal cell a little before that of first posterior, but beyond that of discal cell; second posterior cell with a moderately long petiole; discal cell pentangular, longer than broad, in more than punctiform contact with fifth posterior cell immediately before the middle of its length.

These insects also occur in N. America, Africa, India and Java.

420. *HOLORUSIA CONSPICABILIS*, sp.n.

| | | |
|---------------------------|---------------|----------------------|
| ♂.—Length of antennæ..... | 0·120 inch | ... 3 04 millimètres |
| Expanse of wings..... | 1·000 × 0·200 | ... 25·40 × 5·08 |
| Size of body..... | 0·850 × 0·130 | ... 21·58 × 3·30 |

* The tip of the first longitudinal vein (spoken of as "the cross-vein" by Loew) is not obsolete in *H. conspicabilis*, but clearly reaches the second longitudinal. It is evident that this author regarded the cross-vein between the costa and first longitudinal vein as being the tip of the latter.

Brown, opaque. Front, upper side of rostrum and second joint of scapus yellowish. Thorax margined anteriorly with a sericeous yellow line; traversed by three more or less distinct yellowish lines; intermediate one extending from pronotum to suture; lateral ones sinuose, sometimes interrupted behind humeri, starting immediately below pronotum; deep brown between the last stripes and lateral margin; pleuræ sordid ochreous, with a longitudinal brown or brownish stripe from collare to base of halteres; pectus with brown markings. Abdomen: the segments with the posterior and lateral margins paler; ♂ genitalia with yellow appendages. Legs brownish-yellow, the femora with a broad ring of black or deep brown at the tip. Wings with a pale brownish tint; the costal cell and stigma rather darker; the tip of wing and (especially) the transverse fold with a pale reflection; veins brown, the fifth longitudinal vein and great cross-vein clouded at their juncture.

Hab.—Mulgrave River, Northern Queensland (Froggatt); Buderim Mountains, Queensland (C. J. Wild), *one specimen in Coll. Queensland Museum.* December.

Obs.—I have seen only three specimens of this elegant Tipulid.

421. HOLORUSIA LATERALIS, Walker.

Tipula lateralis, Walker, List Dipt. Brit. Mus. I., p. 70, 1848.

“Ferruginea, flavo varia, thorace fusco trivittato, abdomine fusco, antennis ferrugineis, pedibus fuscis, femoribus basi tibiisque apice fulvis, alis subfuscis vittis nonnullis ferè obsoletis limpidis, margine antico fulvo.”

“Head yellow; its crown ferruginous: mouth ferruginous: palpi black: feelers ferruginous: chest ferruginous, with three light brown lines along its back; fore border and sides bright pale yellow, inclining to white: abdomen brown: legs brown; tips of shanks, and thighs from base to beyond middle, tawny: wings slightly brown, with a few indistinct narrow colourless longitudinal lines; fore borders tawny; veins brown: poisers tawny,

with pale brown tips. Length of the body 10 lines; of the wings 20 lines."

Hab.—N.W. coast of Australia. *Specimen in Coll. British Museum.*

Obs.—Evidently belonging to *Holorusia*, and perhaps closely allied to the last. The species is totally unknown to me. I have not seen any Tipulidæ from N. W. Australia.

Genus 15. TIPULA, Linnæus.

Tipula, Linn., Fauna Suec. 1740; Fabricius, Ent. Syst. IV., 1794; Latreille, Crus. et Ins. IV., p. 255, 1809; Meigen, Syst. Besch. I., p. 168, 1818; Macquart, S. à B. Dipt. I., p. 80, 1834; Curtis, Brit. Entom. XI., p. 493; Macquart, Dipt. Exot. I., p. 52, 1838; Zetterstedt, F. Lapp. 1840; Dipt. Scand. X., 1851; Walker, Ins. Brit. Dipt. III., p. 318, 1856; Schiner, F.A., 1864; Loew, Besch. Europ. Dipt. III., 1873; V. d. Wulp. Dipt. Neerl. 1877; Westhoff, Ueber den Bau des Hypopygiums der Gatt. Tipula, 1882.

Probably none of the following species, described under the generic name *Tipula*, will eventually be found to belong to this genus *sensu stricto*.

422. TIPULA SENEX, White.

T. senex, White, Voy. Erebus and Terror, Insects, p. 27, pl. VII. fig. 15; Walker, List Dipt. Brit. Mus. I. p. 71, 1848.

"Head pale cinereous, with basal fourth and a central oval depression testaceous; prothorax testaceous, with central longitudinal ridge, two lateral cinereous bands; mesothorax and metathorax cinereous, with central and lateral longitudinal dusky bands. Abdomen fulvous; indications of dusky bands of metathorax continued into basal segments. Wings hyaline white; costa to mediastinal vein stramineous; veins testaceous; costa, a spot at first third of discoidal cell, two obliquely just beyond second,

third, a fourth near apex, and a nebulous striole at apex of cell brown. Poisers pale testaceous; legs testaceous; pectus pinkish-cinereous, with several dusky spots. Expanse 2 inches."

Hab.—New Zealand and N. S. Wales (Dr. Sinclair). *Specimens in Coll. British Museum.*

Obs.—The species is unknown to me; the locality N.S.W. is given only on the authority of Walker.

423. TIPULA RUFIVENTRIS, Macquart.

T. rufiventris, Macq., Dipt. Exot. Suppl. I. p. 13, pl. 1, fig. 8, 1846.

"♀.—*Thorace griseo, vittis quatuor fuscis. Abdomine rufo, apice fuscano. Antennis brevibus, nudis, nigris, basi flavis.*"

Head grey; sides of rostrum fulvous; proboscis and palpi black. Front brownish with grey sides. Antennæ black, without hairs, rather short; first joint yellow; the third, fourth, fifth, sixth, and seventh of equal length, and almost cylindrical; the remainder shorter and more slender. Thorax with four blackish stripes before the suture; a yellowish stripe before the origin of the wings; pleuræ grey; metathorax grey, with a black triangular spot. Abdomen dull fulvous; the last three segments brownish, with whitish incisions; ovipositor fulvous. Legs blackish; base of femora yellow. Wings rather clear; veins slightly bordered with brownish; stigma brownish. Length 6×1 lines.

Hab.—Tasmania.

Obs.—In a foot-note attached to the description of this species the author suggests that it might be the ♀ of *T. rubriventris*, Macq., of which he only described the ♂, and he seems to attach some importance to a slight difference between them in the length of the petiole of the second posterior cell. But the petiole often varies in individuals. However, this insect appears otherwise quite a distinct species; for instance, the antennæ are serrate beneath in both sexes of *T. rubriventris*. Unfortunately I have seen no specimens which will answer to the above description.

424. TIPULA NIGRICAUDATA, Macquart.

T. nigricaudata, Macq. Dipt. Exot. Suppl. V. p. 16, p. 1, fig. 2, 1855.

“♂ and ♀.—*Thorace flavido, vittis fuscis. Abdomine ferrugineo, apice nigro. Antennis fuscis, basi rufis. Pedibus fuscis, femoribus basi rufis. Alis subhyalinis, cellula mediastina fusca.*”

Proboscis and palpi obscure; rostrum of ordinary length, fulvous, of a greyish-black above. Front greyish-black, with the sides more clear. Antennæ: the first joints fulvous; the others black, cylindrical. Thorax greyish-yellow, pale, with four black stripes; the two lateral ones shorter than the intermediate; scutellum grey. Abdomen ferruginous; fifth, sixth, and seventh segments blackish; ♂ genitalia a little dilated; ovipositor ferruginous, with the extremity obscure. Legs blackish-brown; femora with the basal half fulvous. Halteres fulvous, with obscure club. Wings hyaline; veins slightly bordered with pale brownish; mediastinal cell brown. Length 6 × 1 lines.

Hab.—Adelaide (M. Bigot).

Obs.—The above description differs so little from that of *T. rufiventris*, that I feel almost warranted in assuming that they both have reference to the same species.

Genus 16. PACHYRRHINA, Macquart.

Pachyrrhina, Macq., S.àB. Dipt. I., p. 88, 1834; Dipt. Exot. I., p. 48, 1838; O.-Sacken, Studies I., p. 184, 1886.

First longitudinal vein joining anterior branch of second longitudinal near the base; præfurca as long as or shorter than great cross-vein; second posterior cell sessile; discal cell (? always) separated from fifth posterior by a very short vein. Front convex, or gibbose anteriorly. Rostrum short and thick; nasus distinct, acute. Antennæ normally 13-jointed, sometimes more; in ♂ usually about the length of or longer than thorax, shorter than it in ♀: flagellar joints beset with short stiff hairs at the base. ♂ genitalia rather incrassate, of complicated structure; ♀ ovipositor with straight subulate valves.

The species now described exhibits the following structural characters. Rostrum half the length of the head; nasus pointed, haired. Palpi with the second and third joints about equal in length, considerably longer than the first; fourth longer than preceding three combined, slender, flagelliform. Antennæ in ♂ as long as the head and thorax combined, in ♀ about twice the length of the head; first joint of scapus not very long, shorter than first flagellar joint, obconical; second very short, narrower than the first, cyathiform; flagellar joints subcylindrical, just perceptibly nodose at the base, progressively diminishing in length and thickness, the second to tenth beset with a few short stiff hairs at the base; the terminal joint minute. Front tolerably broad, gibbose anteriorly. Collare only slightly prolonged. Thorax elongate-ovate, convex; scutellum and metanotum convex. Abdomen long, cylindrical; ♂ genitalia incrassate; valves of ♀ ovipositor straight. Legs long and slender; fore and intermediate tibiæ with a single short spur, hind pair with two short spurs; tarsi very slender, considerably longer than the tibiæ; ungues minute, smooth in both sexes; empodia present. Wings lanceolate, divaricate; anal angle distinct but not prominent. Auxiliary vein running close to the first longitudinal vein, with a short tooth of a vein at its tip; ultimate section of the anterior branch of second longitudinal vein almost appearing as a continuation of the first longitudinal; præfurca very short, obliquely situated, considerably less than half the length of great cross-vein; second posterior cell long, usually in not more than punctiform contact with discal cell; discal cell very small, rhomboidal, separated (at its inner end) from fifth posterior cell by a very short vein.

This genus is of universal distribution. The body-colouring of the contained insects is usually some shade of yellow, banded and striped with black. Some species (European and American) possess 19-jointed antennæ in ♂, 15-jointed in ♀; whilst the N. American *P. polymera*, Loew, has 16-jointed antennæ in ♂ and 14-jointed in ♀.

425. PACHYRRHINA AUSTRALASÆ, sp.n. (Pl. v., fig. 20.)

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·210 inch | ... | 5·33 millimètres. |
| Expand of wings..... | 0·450 × 0·100 | ... | 11·43 × 2·54 |
| Size of body..... | 0·480 × 0·060 | ... | 12·18 × 1·54 |
| ♀.—Length of antennæ..... | 0·130 inch | ... | 3·30 millimètres. |
| Expand of wings..... | 0·500 × 0·120 | ... | 12·70 × 3·04 |
| Size of body..... | 0·640 × 0·070 | ... | 16·25 × 1·77 |

Fulvous, the head and thorax usually paler yellow. Nasus brownish. Flagellar joints of antennæ brown or black. Thorax with three prominent shining black stripes; intermediate broader at the pronotum, extending to the suture; lateral ones from humeri to scutellum, interrupted at suture. Halteres yellow. Abdomen: first five segments banded posteriorly with black; sixth and seventh entirely black; genitalia brownish-fulvous. Coxæ and femora fulvous, the tips of the latter deepening into dark brown or black. Tibiæ brownish or dusky-fulvous, the tips dark brown or black. Tarsi dark brown or black. Wings pellucid, with a greyish tint; beautifully iridescent; veins deep brown or black; stigma fuscous, distinct. Venation as in the preceding enumeration of structural characters.

Hab.—Barron and Mulgrave Rivers, N. Queensland (Froggatt); Nerang, Queensland (C. J. Wild), *one specimen in Coll. Queensland Museum*; Lord Howe Island, N.S.W. (Saunders). April to July. Fifteen specimens.

b. Genitalia inconspicuous in both sexes.

Genus 17. MACROMASTIX, Osten-Sacken.

Tipula, Swederus, Act. Holm. 1787, p. 286; *Megistocera*, Westw., Zool. Journ. V. p. 451, 1830; *Macrothorax (praoc.)*, Jænnicke, Abh. Senck. Natur. Ges. Frank. VI. p. 319, 1867; *Macromastix*, Osten-Sacken, Studies on Tipulidæ, I. p. 185, 1886.

First longitudinal vein joining anterior branch of second longitudinal vein near the base; præfurca usually longer than great

cross-vein; second posterior cell petiolate; proximal end of stigma thickened. Front broad, with a tubercle anteriorly. Rostrum as long as the head; nasus distinct. Antennæ 13-jointed in both sexes; ♂ antennæ sometimes very long and filiform, often short as in the ♀ (about the length of, or even a little longer than, the head and rostrum combined). Genitalia inconspicuous in both sexes.

Rostrum the length of the head; in *M. constricta* (Pl. VI., fig. 51) distinctly constricted just before the middle of its length (viewed from above); clothed with minute pubescence; nasus distinct, haired. Palpi with the first and third joints about equal in length, the second slightly longer, fourth joint about the length of preceding taken together. The antennæ are 13-jointed, short in both sexes, or the ♂ antennæ very long (of extraordinary length in *M. costalis* and the South American *M. chilensis*, Phil.). The great length of the ♂ antennæ in some species has hitherto been regarded as a generic character, but it is now found that, as with *Megistocera*, Wied., and some other genera, there are species in which both ♂ and ♀ possess short antennæ. In the ♂ of *M. costalis* the antennæ are about three times the length of a wing; the first joint of the scapus incrassate, almost fusiform, the second short annular; first nine flagellar joints almost filiform, progressively increasing in length and diminishing in thickness; the terminal two joints very minute (particularly the last one); the flagellum is clothed on the inner side with a microscopic dense pubescence, amongst which, at regular intervals, are minute spine-like bristles. Baron Osten-Sacken says that the microscopic pubescence exists on the under-side of the flagellum; however, it is distinctly on the inner side in *M. costalis*, and only visible viewed from above or beneath. The ♂ antennæ of *M. Helmsi* are almost the length of a wing; the first joint of scapus much smaller than in *M. costalis*; the flagellar joints of similar structure to those of the last-named, but with dense microscopic pubescence both beneath and on the inner side, a more sparse pubescence above and on the outer side, and without the spine-like bristles (as in the New Zealand *M. vulpina*,

Hutton). In the ♀ of *M. costalis* and *M. Helmsi*, and in both sexes of the remaining four species now described, the antennæ are short, about the length of, or a little longer than the head and thorax taken together; the first joint of the scapus obconical, not unusually long or thick; second joint small, short, cyathiform; flagellar joints diminishing in length and thickness, beset with minute hairs; the first four or five joints elliptical, or sub-cylindrical attenuate at the base; the remaining six or seven joints more or less linear, sometimes the last one (or even two) minute (evidently subject to modification). Front broad, with a tubercle or gibbosity anteriorly, which is more distinct in the ♂ than in the ♀; in the ♂ of *M. costalis* the tubercle is very large and hairy (Pl. VI., fig. 48); whilst in both sexes of *M. humilis* it is reduced to a scarcely perceptible gibbosity. Thorax elongate-ovate, gibbose (densely haired in the ♂ of *M. costalis*); metanotum convex; transverse suture distinct. Abdomen short, not more than about twice the length of the thorax; in ♂ cylindrical; in ♀ more stout; the genitalia in both sexes inconspicuous, narrow, only a little protruding (Pl. VI., fig. 50, ♂ genitalia of *M. costalis*); two very small valvules are visible in the terminal segment of the ♀. Legs long and slender; fore tibiæ with a single small spur, the intermediate and hind tibiæ each with a pair; tarsi considerably (especially the hind pair) longer than the tibiæ; ungues small; empodia present. Wings lanceolate; anal angle usually inconspicuous, tolerably distinct in the ♂ of *M. costalis*. Auxiliary vein terminating in first longitudinal vein at inner end of stigma; the inner end of stigma thickened (figured as a vein by Westwood and Jænnicke); first longitudinal vein joining anterior branch of second longitudinal vein near the base; the latter branch not very obliquely situated; rhomboid cell small; præfurca usually longer than great cross-vein, in direct line with remainder of the second longitudinal; inner end of second submarginal and first posterior cells obliquely in line; second posterior cell petiolate; discal cell elongate, pentangular, usually in punctiform contact (at about $\frac{1}{3}$ of its length) with fifth posterior cell; seventh longitudinal vein usually short and running close to the margin, the most distant from it in *M. costalis*.

The insects included in this genus may be at once distinguished by their small abdomen, and inconspicuous nature of the ♂ holding forceps and ♀ ovipositor. Their colour is usually dull and the wings have a more or less distinct brown border anteriorly.

These flies are commonly found among grass and low herbage and may be known by their peculiar darting flight.

The New Zealand species has been described by Prof. Hutton (Cat. N. Zeal. Dipt. p. 16, 1881); whilst *Megistocera chilensis*, Phil. (V. z-b. G. Wien, p. 617, 1865), described from S. America, is, Baron Osten-Sacken informs me, a true *Macromastix*. In both the ♂ possesses long antennæ. Besides these and the following no others have been described.

Table for determining the species.

- I. ♂ antennæ about three times the length
of a wing..... .. *costalis*, Swed.
- II. ♂ antennæ about the length of a wing... *Helmsi*, sp.n.
- III. ♂ and ♀ antennæ short.
- a. Rostrum distinctly constricted before the middle *constricta* sp.n.
- b. Rostrum almost straight.
- * Wings conspicuously bordered anteriorly with brown, followed by a narrow almost hyaline streak *Mastersi*, sp.n.
- ** Wings bordered anteriorly with brown, paler than the stigma *obscurirostris*, sp.n.
- *** Wings deeply clouded in costal cell only; the veins slightly clouded..... *humilis*, sp.n.

I. ♂ *antennæ* about three times the length of a wing.

426. MACROMASTIX COSTALIS, Swederus. (Pl. v., fig. 21.)

Tipula costalis, Swederus, Act. Hom. 1787 p. 286; *Megistocera dimidiata*, Westwood, Zool. Journ. V. p. 451, 1830; Ann. Soc. Ent. Fr. IV, p. 682, 1835; Trans. Ent. Soc. Lond. 1881, p. 378, pl. xviii. fig 9; *M. dispar*, Walker, Ent. Mag II, p. 468, 1835; Schiner, Dipt. "Novara" Exp. 1868, p. 39; *M. limbipennis*, Macquart, Dipt. Exot. I, p. 60, pl. vi. fig. 1, 1838; Suppl. 1, p. 17, pl. II, fig. 3, 1846; Suppl. IV, p. 16, 1850: *M. pacifica*, Erichson, Archiv für Natur. VIII, Bd. I, p. 270, 1842; *Macrothorax ornatus*, Jænnicke, Abh. Senck. Natur. Ges. Frank. VI. p. 320, pl. 43, fig. 2, 1867.

| | | |
|---------------------------|---------------|-----------------------|
| ♂.—Length of antennæ..... | 2·000 inch* | ... 5080 millimètres. |
| Expanse of wings..... | 0·700 × 0·160 | ... 17·78 × 4·06 |
| Size of body..... | 0·460 × 0·120 | ... 11·70 × 3·04 |
| ♀.—Length of antennæ..... | 0·090 inch | ... 2·27 millimètres. |
| Expanse of wings..... | 0·700 × 0·160 | ... 17·78 × 4·06 |
| Size of body..... | 0·500 × 0·090 | ... 12·70 × 2·27 |

Ochreous or brownish ochreous. Head sometimes with two small indistinct dusky spots between the eyes; in ♂ densely covered with tolerably long yellow hairs; the frontal gibbosity very large, prominent and densely haired in the ♂, not at all conspicuous in ♀; palpi often having the last three joints brownish or even black, sometimes also the first joint; flagellar joints of antennæ brown; in ♂ long and almost filiform; in ♀ short, the first four or five elliptical, the rest becoming slender or linear. Thorax considerably larger and more gibbose in ♂, also covered with tolerably long yellow hairs in ♂; the mesothorax usually more brownish or greyish in the ♀; four darker brownish stripes, sometimes only the two intermediate or often none (more often in ♂ specimens) traverse the mesothorax; the intermediate pair

* About the mean measurement.

extending from pronotum to the suture; the lateral one short, starting from below the humeri; pleuræ with a distinct hoary bloom in ♀; scutellum and metanotum ochreous or brownish ochreous in both sexes; covered with tolerably long yellow hairs in the ♂. Halteres with a brownish club. Abdomen in ♂ not much longer than the thorax, shining, pubescent, the last three or four segments often brownish and the terminal segment usually black or dark brown; in ♀ once and half or twice the length of the thorax, hoary grey or brown, usually dull, the first one or two and last two or three segments and venter usually more ochreous or brownish ochreous. Legs with the femora and tibiæ brown or blackish at the apex; tarsi brown or blackish, the basal half of metatarsal joint usually more brownish ochreous (Pl. vi., fig. 49). Wings almost hyaline, with a slightly greyish tint; the anterior border, including first basal cell (except apical fourth), to anterior branch of second longitudinal vein, brown; first submarginal and apical portion of second submarginal cell, and the fifth longitudinal vein, more or less distinctly clouded with yellowish; veins brown, more ochreous towards the base; anal angle more distinct in ♂ (especially in well-developed specimens).

Hab.—Generally distributed throughout Australia. Blue Mountains and several localities in N.S.W. (Masters and Skuse); Mount Kosciusko, N.S.W., 3,500 ft., in March (Helms); *several specimens in Coll. Australian Museum*; Tasmania, Victoria, South Australia and Western Australia (Masters); Glass Mountains, Queensland (C. J. Wild), *specimens in Coll. Queensland Museum*. Common from August to December, among grass and low bushes.

Obs.—After carefully examining and comparing a very large number of specimens from all parts of Australia I cannot but feel convinced that all the hitherto described specimens appertain to the same species. The only differences in the descriptions appear to be of a very trivial nature; for instance, what Walker and Macquart call “ferruginous,” Westwood calls “fulvo-ochraceous,”

Erichson "luteous," and Jænnicke "rust-yellow." One author says that the thorax has "four reddish lines," whilst another, only noticing the interstices of these, states "three pale lines." Westwood in describing his *M. dimidiata* says "thorace interdum obscurius bivittato," which is also true of some specimens before me; all four stripes or perhaps only the two short lateral ones being subject to obliteration. Osten-Sacken (Studies I., p. 186), truly remarks that the thorax of *M. ornatus*, Jæn., appears "larger and more gibbose than usual," but the specimen from which the description was drawn is evidently a large, well-developed one, of which I have several. With regard to the palpi, authors differ; what Walker, perhaps carelessly, calls "black" (as they seem only rarely entirely black), others call "blackish-brown, yellow at the base," "brownish, yellow at the base" or even "yellow, black at apex." All agree in the colours of the antennæ, abdomen and legs, only differing in the terms employed to denote them. The size of the insect is variously stated, but then among the specimens before me there are those which will answer to each case; whilst the length of the male antennæ which is only noticed by Schiner (at 24 lines) varies in length from 22 to 30 lines with almost imperceptible intermediate gradations.

II. ♂ antennæ about the length of a wing.

427. MACROMASTIX HELMSI, sp.n. (Pl. v., fig. 22.)

| | | | |
|---------------------------|---------------|----|--------------------|
| ♂.—Length of antennæ..... | 0·525 inch | .. | 13·32 millimètres. |
| Expansé of wings..... | 0·540 × 0·120 | .. | 13·70 × 3·04 |
| Size of body..... | 0·380 × 0·070 | .. | 9·64 × 1·77 |
| ♀.—Length of antennæ..... | 0·060 inch | .. | 1·54 millimètres. |
| Expansé of wings..... | 0·540 × 0·120 | .. | 13·70 × 3·04 |
| Size of body..... | 0·380 × 0·070 | .. | 9·64 × 1·77 |

Head greyish-brown, more or less ochreous or fulvous; frontal gibbosity considerably more distinct in ♂; rostrum brownish-fulvous, sometimes tinged with blackish above and beneath;

palpi black; joints of scapus brownish-fulvous, the flagellar joints black; in ♂ almost filiform, about the length of a wing; in ♀ short, the first four or five joints subcylindrical, the remainder almost linear. Collare dull brown. Thorax dull, yellowish-grey, with four more or less distinct brown stripes, the intermediate ones approximate, sometimes confluent, the lateral ones short, starting below the humeri; pleuræ hoary greyish; scutellum and metanotum fulvous or brownish-fulvous. Halteres brownish. Abdomen brown, shining in ♂, with a distinct hoary bloom in ♀; the first segment, anterior half of second, the anterior margin of some of the following, and the pectus, more or less brownish-fulvous or testaceous; last one or two segments black. Coxæ ochreous or fulvous, with a hoary bloom. Femora fulvous, black at the apex. Tibiæ darker than the femora, growing black at apex. Tarsi black. Wings with a greyish or very pale brownish tint; the anterior border brown (not so dark as the stigma), not so distinctly in first basal cell as in *M. costalis*; veins dark brown; anal angle slightly angulated a little before the tip of seventh longitudinal vein, inconspicuous in both sexes; the latter vein running rather close to and parallel with the margin.

Hab.—Mount Kosciusko, 5000-6000 feet, N.S.W. (Helms).
 March. *Several specimens in Coll. Australian Museum.*

III. ♂ and ♀ antennæ short.

428. MACROMASTIX MASTERSI, sp.n. (Pl. v., fig. 23.)

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·105 inch | ... | 2·67 millimètres. |
| Expansion of wings | 0·600 × 0·135 | ... | 15·24 × 3·42 |
| Size of body..... | 0·400 × 0·090 | ... | 10·16 × 2·27 |

Head (Pl. vi., fig. 52) yellowish-ferruginous, with two small indistinct brownish spots between the eyes; frontal tubercle rather prominent; rostrum ferruginous, as long as the head; nasus dusky; suctorial labella and palpi black, or dark brown; antennæ about the length of head and rostrum taken together; joints of scapus ferruginous, also the

following few flagellar joints more obscure, the remainder deepening into black; first four flagellar joints subcylindrical, the rest linear. Thorax yellowish-ferruginous, opaque, with four dull brownish longitudinal stripes; intermediate pair approximate, starting immediately below pronotum; lateral ones short, beginning below humeri; suture dark brown; pleuræ between fore and intermediate coxæ (and the pectus) with a grey bloom; scutellum and metathorax yellowish-fulvous. Halteres yellowish fulvous, with brown club. Abdomen shining; the first segment and anterior portion or whole of second fulvous or yellowish-fulvous; the following segments brown, sometimes obscure fulvous, the terminal two or three (and genitalia) black. Coxæ fulvous, the intermediate pair with a grey bloom. Femora obscure fulvous, more clear towards the base, and black at the apex. Tibiæ black, or dark brown growing black towards the apex. Tarsi black. Intermediate and hind tarsi rather more than twice the length of tibiæ. Wings with a distinct greyish tint; the anterior border fuscous, followed by a narrow almost hyaline streak; seventh longitudinal vein running tolerably close to and almost parallel with the margin; the anal angle more rounded off than in *M. Helmsi*.

Hab.—Sydney and Woronora, N.S.W. (Masters and Skuse). Three specimens.

429. *MACROMASTIX CONSTRICTA*, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·075 inch | ... | 1·89 millimètres. |
| Expans of wings..... | 0·570 × 0·120 | ... | 19·47 × 3·04 |
| Size of body..... | 0·400 × 0·090 | ... | 10·16 × 2·27 |
| ♀.—Length of antennæ..... | 0·075 inch | ... | 1·89 millimètres. |
| Expans of wings | 0·570 × 0·120 | ... | 19·47 × 3·04 |
| Size of body..... | 0·450 × 0·080 | ... | 11·43 × 2·02 |

Head yellowish-ferruginous, with four indistinct brownish spots between the eyes, the anterior pair very small, sometimes confluent with the posterior pair; frontal tubercle tolerably distinct

in the ♂, not so prominent as in *M. Mastersi*; rostrum ferruginous, shining, as long as the head, distinctly constricted before the middle (when viewed from above); palpi black; antennæ a little longer than rostrum; joints and scapus fulvous; flagellar joints black, the first four subcylindrical, the rest small, linear. Thorax light brown, opaque, sometimes darker towards pronotum, usually traversed by an indistinct ochreous median line; from humeri to origin of wings greyish-ochreous; suture dark brown; pleuræ, pectus, and all the coxæ with a grey bloom; scutellum and metathorax fulvous. Halteres with brown club. Abdomen in ♂ shining, brownish-fulvous, more obscure posteriorly, the last two segments of genitalia black; in ♀ slightly covered with a greyish bloom, all the segments, except the first and last, tinged and bordered with blackish, the sixth entirely black; venter obscure fulvous. Trochanters fulvous. Femora and tibiæ fulvous, the latter often brown in the intermediate and hind legs, black at the tip. Tarsi black. All the tarsi less than twice the length of the tibiæ. Wings with a pale brownish tint; anterior border and stigma brown; first posterior cell and fifth longitudinal vein slightly clouded; seventh longitudinal vein running close to and parallel with the margin.

Hab.—Como and Sydney, N.S.W. (Masters and Skuse). Several specimens.

Obs.—Easily distinguished from the last, which it most resembles, by its less distinct wing-colouring, shorter tarsi, constricted rostrum, and the colour of thorax and position of the seventh longitudinal vein.

430 MACROMASTIX OBSCURIROSTRIS, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·100 inch | ... | 2·54 millimètres. |
| Expanse of wings..... | 0·660 × 0·140 | ... | 16·78 × 3·55 |
| Size of body..... | 0·460 × 0·090 | ... | 11·70 × 2·27 |
| ♀.—Length of antennæ..... | 0·075 inch | ... | 1·89 millimètres. |
| Expanse of wings..... | 0·600 × 0·140 | ... | 15·24 × 3·55 |
| Size of body..... | 0·460 × 0·090 | ... | 11·70 × 2·27 |

Head slate-grey or greyish-brown, with two very faint brownish or yellowish-brown spots between the eyes; frontal tubercle tolerably distinct in the ♂; rostrum the length of the head, deep brown or black, more or less reddish or fulvous at the sides; suctorial labella and palpi black; ♂ antennæ the length of head and rostrum combined, shorter in the ♀; joints of scapus fulvous orange; flagellar joints black, the first four subcylindrical, the rest linear. Thorax cinereous, opaque, traversed by four equidistant pale brown stripes; greyish-black behind the suture; pleuræ hoary greyish-black; scutellum and metathorax fulvous. Halteres brown. Abdomen brown, more or less tinged with fulvous or brownish-fulvous, somewhat shining (more so in ♂), covered with a slight greyish-bloom, the last two or three segments and genitalia greyish-black; venter greyish-fulvous. Coxæ hoary greyish; the trochanters fulvous. Femora fulvous or reddish-fulvous, growing black on the apical half. Tibiæ and tarsi black. In the ♂ the intermediate and hind tarsi rather more than twice the length of the tibiæ; in ♀ less than twice their length. Wings with a pale brownish tint; anterior border brown, but rather paler than the stigma; veins deep brown or black, the fifth longitudinal indistinctly clouded; seventh longitudinal vein running tolerably distant from margin.

Hab.—Mount Kosciusko, N.S.W., at 5,000 ft. (Helms).
March. *Several specimens in Coll. Australian Museum.*

431. *MACROMASTIX HUMILIS*, sp.n.

| | | | |
|---------------------------|---------------|-----|-------------------|
| ♂.—Length of antennæ..... | 0·060 inch | ... | 1·54 millimètres. |
| Expand of wings | 0·500 × 0·110 | ... | 12·70 × 2·79 |
| Size of body..... | 0·380 × 0·060 | ... | 9·64 × 1·54 |
| ♀.—Length of antennæ..... | 0·060 inch | ... | 1·54 millimètres. |
| Expand of wings | 0·500 × 0·110 | ... | 12·70 × 2·79 |
| Size of body..... | 0·380 × 0·060 | ... | 9·64 × 1·54 |

Head greyish, or slate-brown; front more gibbose anteriorly in the ♂ than in the ♀; rostrum about the length of the head,

black or brown, fulvous at the sides; suctorial labella and palpi black; antennæ in both sexes shorter than the head and rostrum taken together; joints of scapus fulvous, the second sometimes brown; flagellar joints black, the first five elliptical or subcylindrical, progressively diminishing in length and thickness, the rest linear. Thorax black, with a yellowish-grey bloom; pleuræ with a grey bloom; scutellum and metathorax fulvous. Halteres obscure fulvous, with a dusky club. Abdomen about three times the length of the thorax, black, with a slight greyish bloom, the first two or three segments more or less fulvous at the sides; genitalia brown or darker. Legs black, the femora fulvous on their basal half; coxæ with a grey bloom; trochanters fulvous. All the tarsi less than twice the length of the tibiae. Wings with a pale greyish-brown tint, dark fuscous in the costal cell; all the veins and the first basal cell, also usually the posterior margin, somewhat infuscated with greyish; veins black; stigma brownish; the seventh longitudinal vein running close to and parallel with the margin.

Hab.—Benalla, Victoria (Helms). Six specimens in November.

EXPLANATION OF PLATES.

PLATE IV.

- Fig. 1. Wing of *Dolichozeza longifurca* (♀).
 Fig. 2. „ „ *varipes*.
 Fig. 3. „ *Tanypremna fastidiosa*.
 Fig. 4. „ *Ctenogyna bicolor* (♀).
 Fig. 5. *Clytocosmus Helmsi* (♂), perfect insect (natural size); 5a, antenna of ♂, 5b, terminal three joints; 5c, head viewed from the side; 5d, antenna of ♀, 5e, three flagellar joints viewed from the side, 5f, terminal three joints.
 Fig. 6. Wing of *Ptilogyne ramicornis* (♂).
 Fig. 7. „ *Platyphasia princeps* (♂).
 Fig. 8. „ *Plusiomyia gracilis* (♀).
 Fig. 9. „ „ *Olliffi* (♂).

PLATE V.

- Fig. 10. Wing of *Plusiomyia lineata* (♀).
 Fig. 11. „ „ *Habromastix cinerascens*.
 Fig. 12. „ „ „ *remota* (♀).
 Fig. 13. „ „ *Phymatopsis nigrirostris* (♂).
 Fig. 14. „ „ *Semnotes ducalis* (♀).
 Fig. 15. „ „ *Leptotarsus Macquarti* (♀).
 Fig. 16. „ „ *Acracantha Sydneyensis* (♂).
 Fig. 17. „ „ *Ischuotoma serricornis*.
 Fig. 18. „ „ „ *par.*
 Fig. 19. „ „ „ *rubriventris*.
 Fig. 20. „ „ *Pachyrrhina australasie*.
 Fig. 21. „ „ *Macromastix costalis*.
 Fig. 22. „ „ „ *Helmsi*.
 Fig. 23. „ „ „ *Mastersi*.

PLATE VI.

- Fig. 24. Male forceps of *Dolichozepea monticola*.
 Fig. 25. „ „ „ *planidigitalis*.
 Fig. 26. „ „ „ *Tanypremma fastidiosa*.
 Fig. 27. Male antenna of „ „ „
 Fig. 28. Male forceps of *Ptilogyne ramicornis*.
 Fig. 29. Male antenna of „ „ „
 Fig. 30. „ „ „ *Platyphasia princeps*.
 Fig. 31. „ „ „ *Plusiomyia gracilis*, viewed from side.
 Fig. 32. Female antenna of „ „ „ *inornata*, viewed from above.
 Fig. 33. Male forceps of *Habromastix cinerascens*.
 Fig. 34. Female antenna of „ „ „
 Fig. 35. Male antenna of *Phymatopsis nigrirostris*.
 Fig. 36. Male forceps of „ „ „
 Fig. 37. Female antenna of *Semnotes imperatoria*.
 Fig. 38. „ „ palpus of „ „ „
 Fig. 39. „ „ antenna of *Leptotarsus Macquarti*.
 Fig. 40. Male antenna of „ „ „ *scutellaris*.

- Fig. 41. Male forceps of *Acracantha Sydneyensis*; 41a, side-view.
Fig. 42. „ antenna of „ *monticola*.
Fig. 43. „ forceps of *Ischnotoma serricornis*.
Fig. 44. „ „ „ *par*.
Fig. 45. „ „ „ *rubriventris*.
Fig. 46. „ antenna of „ *par*, viewed from beneath.
Fig. 47. Terminal joints of tarsus of *Holorusia conspicabilis* (♂)
Fig. 48. Head of *Macromastix costalis* (♂), viewed from side.
Fig. 49. Terminal joints of tarsus of *M. costalis* (♂).
Fig. 50. Male forceps of *M. costalis*.
Fig. 51. Rostrum of *M. constricta*, viewed from above.
Fig. 52. Head of *M. Mastersi* (♂), viewed from side.